
**Integrated Safety Management System Verification
Phase I and Phase II (Construction Department)
River Protection Project Waste Treatment Plant**



February 2003

VOLUME II

**U.S. Department of Energy
Office of River Protection**

TABLE OF CONTENTS

Volume II

COMPLETED ASSESSMENT FORMS	1
Verification review Plan/CRITERIA AND REVIEW APPROACH DOCUMENT	116

COMPLETED ASSESSMENT FORMS

FUNCTIONAL AREA: Business, Budget, & Contracts	OBJECTIVE: BBC I-1	DATE: 2/12/03
---	---------------------------	----------------------

OBJECTIVE:

DOE and contractor procedures ensure that missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated. (CE I-2, CE I-6, CE I-7, CE I-9)

Criteria

1. DOE guidance for translating mission into work includes delineating its plan of work. This means the scope, schedule, and funding allocations for each fiscal year. (FRAM 9.2.1)
2. DOE guidance for setting expectations for the contractor is established through contracts and regulations. These contracts and regulations provide guidance on expected performance, set goals and priorities, and allocate resources. (FRAM 9.2.2)
3. DOE roles and responsibilities are clearly delineated to ensure a satisfactory level of safety, accountability, and authority to define the scope of work. (FRAM 9.2.2)
4. DOE procedures ensure that the contractor adequately prioritizes work so that, when the ISMS is implemented, mission and safety expectations are met within available budget and resources. DOE procedures require that performance objectives and related goals and priorities are reviewed and approved. (FRAM 9.2.4)
5. Contractor procedures translate mission expectations from DOE into tasks that permit identification of resource requirements, relative prioritization, and performance measures that are established consistent with DOE requirements. (DEAR 970.5204-2, DOE P 450.5)
6. DOE and contractor procedures provide for DOE approval of proposed tasks and prioritization. Work planning procedures provide for feedback and continuous improvement.
7. DOE and contractor procedures provide for change control of approved tasks, prioritization, and identification of resources.
8. DOE contracting procedures require that the requirements of applicable Federal, State, and local regulations (List A) and the requirements of Department of Energy directives (List B) are appended to the contract.
9. Contractor procedures provide for flow down of DEAR 952.223-71, "Integration of Environment, Safety and Health into Work Planning and Execution" requirements into subcontracts involving complex or hazardous work.

APPROACH:

Records Review:

Bechtel Procedures, Policies and Records:

- 24590-WTP-ISMSD-ESH-01-001, Rev. 1: *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PL-ESH-02-005, Rev. 1: *ISMS Implementation Master Plan*
- 24590-WTP-GPP-GPA-00200: *Acquisition*
- 24590-WTP-GPP-GPX-00503: *Award*
- 24590-WTP-GPP-GAB-00106: *Budgeted Cost of Work Performed (BCWP)*
- 24590-WTP-GPP-GAB-00105: *Budgeted Cost of Work Scheduled (BCWS)*
- 24590-WTP-GPP-GAB-00102: *Estimating*
- 24590-WTP-GPP-GAA-00313: *Business Trips*
- 24590-WTP-GPP-GPX-00606: *Claims, Disputes*
- 24590-WTP-GPP-CON-4101: *Construction Subcontract Management*
- 24590-WTP-GPP-GAV-00100: *Contract Management*
- 24590-WTP-GPP-GAV-00102: *Contract Changes and Pending Item Procedure*
- 24590-WTP-GPP-GPA-00800: *Control of Government Vehicles*
- 24590-WTP-GPP-GPA-00700: *Control of Gov. Property in Possession of Subcontractors*
- 24590-WTP-GPP-GPX-00404: *Cost Price Analysis*
- 24590-WTP-GPP-GPA-10104: *Direct and Indirect Costs*
- 24590-WTP-GPP-GAB-00108: *Funding Control*
- 24590-WTP-GPP-GPX-00603: *Invoice and Payment*
- 24590-WTP-GPP-CTA-001A: *Life-Cycle Cost*
- 24590-WTP-GPP-GPA-00600: *Property Control*
- 24590-WTP-GPP-GPX-00201: *Make or Buy / Lease versus Purchase*
- 24590-WTP-GPP-GPA-00100: *Property Management Program*
- 24590-WTP-GPP-GPA-00300: *Property Records*
- 24590-WTP-GPP-AS-001: *Purchasing Flow Process*
- 24590-WTP-GPP-GPX-00206: *Subcontract/Purchase Order Files*
- 24590-WTP-GPP-GPX-00602: *Subcontract/Purchase Order Modification and Changes*
- 24590-WTP-GPP-CON-7105A: *Subcontractor Submittals*
- 24590-WTP-GPP-GAB-00103: *Trend Program*
- 24590-WTP-GPP-GAA-00105: *Unallowable Costs*
- 24590-WTP-GPP-GAA-00321: *WTP P Card Program*
- 24590-WTP-GPP-AS-002: *P Cards*
- General Conditions construction subcontracts
- Special Conditions construction subcontracts
- WTP Baseline Change Control Program Plan (Draft Issue – no number)
- BSII Instruction 321: *P Cards*
- MOA 091001-01: *Services between Flour and BNI*

DOE Procedures, Policies and Records:

- DOE ORP Acquisition Strategy, Contract Management Description and Performance Status – February 2003 (Draft Document from ORP Office of Project Administration - OPA)
- OPA Workscope Deliverables Database, FY2003
- Bechtel National Inc. (BNI) Contract Management Plan
- CH2M HILL Hanford Group Inc. (CHG) Contract Management Plan
- ORP Approved Project Baseline Summary Sheets from ORP for FY1997 through FY2070 (ORP Memo dated October 24, 2002)
- ORP Budget Request FY2004
- ORPM 450.4: *ORP ISMS Description*
- DOE G 450.4-1B: *ISMS Guide*
- Contract No. DE-AC27-01RV14136 (BNI - WTP)
- Contract No. DE-AC27-99RL14047 (CHG)
- DEAR 952.223-71
- ORPPD 414.1-2: *OPA Quality Assurance Program*
- ORPM 414.1-1: *ORP Quality Assurance Program*
- ORPPD 220.1-8: *OPA Management Assessments*
- ORPM 220.1: *ORP Integrated Assessment Program*
- ORPM 411.1-1 R2, *Safety Management Functions, Responsibilities and Authorities Manual (FRAM)*

Interviews Conducted:

- Manager, Business Services
- Manager, Prime Contracts
- Manager, Controller
- Manager, Deputy Controller
- Manager, Acquisition Services
- Manager, Project Controls
- Manager, Financial Services (WGI)
- Manager, Internal Audit (BSII)
- Manager, Project Archive and Document Control
- Manager, Engineering Processes, Procedures and Personnel

Observations:

- Pretreatment Facility Trend Standing Meeting
- High Level Waste Facility Trend Standing Meeting
- Balance of Facilities Trend Standing Meeting
- Project Issues and Concerns Standing Meeting

Discussion of Results:

DOE guidance for translating mission into work includes delineating its plan of work. This means the scope, schedule, and funding allocations for each fiscal year. (FRAM 9.2.1)

The project baseline summaries delivered to EM-1 describe the scope, schedule, and funding allocations necessary to carry out the Office of River Protection (ORP) mission. This and other submissions reflect the Program Secretarial Officer (PSO) mission assignments and work by facilities, projects, and programs. The EM Integrated Planning, Accountability, and Budgeting System (IPABS) is maintained for ORP by the Office of Project Administration. The IPABS data for ORP ensures EM that work is planned to meet the EM mission.

ORP Manual 411.1-1 R2, *Safety Management Functions, Responsibilities, and Authorities Manual* (FRAM) describes ORP roles and responsibilities to ensure a satisfactory level of accountability, and authority to define the scope of work. The FRAM provides that the Manager, ORP approve budget authority consistent with DOE approved funding and approve/disapprove change control requests that cross areas of responsibility or that require changes in total costs contained in the budget authority.

DOE guidance for setting expectations for the contractor is established through contracts and regulations. These contracts and regulations provide guidance on expected performance, set goals and priorities, and allocate resources. (FRAM 9.2.2)

DOE expectations are set forth in BNI's prime contract (DE-AC27-01RV14136). The contract includes specific deliverables in the statement of work (Section C, clause C.5). Section C describes performance activities, management products and controls, and detailed descriptions for contract deliverables including due dates. BNI's overall plan for project execution and BNI's ES&H reporting requirements must be concurred upon by DOE. The entire list of deliverables is shown in Section C, Table C.5-1.1, *Deliverables*. BNI procedures are written to be consistent with the approval requirements included in the contract.

Section B of the BNI contract defines funding limitations, incentive fees, and method of calculating provisional payments of fee. A contractually binding funding profile is also included in the contract at Section J.

DOE roles and responsibilities are clearly delineated to ensure a satisfactory level of safety, accountability, and authority to define the scope of work. (FRAM 9.2.2)

ORP Manual 411.1-1 R2, *Safety Management Functions, Responsibilities, and Authorities Manual* (FRAM), describes ORP roles and responsibilities to ensure a satisfactory level of accountability, and authority to define the scope of work. In addition, the BNI scope of work is clearly defined in the contract.

DOE procedures ensure that the contractor adequately prioritizes work so that, when the ISMS is implemented, mission and safety expectations are met within available budget and resources. DOE procedures require that performance objectives and related goals and

priorities are reviewed and approved. (FRAM 9.2.4)

Required Department of Energy Acquisition Regulation (DEAR) and Federal Acquisition Regulation (FAR) clauses included in the BNI contract and flowed down to BNI subcontracts provide assurance that ISMS is implemented and safety expectations are met, within available budget and resources. In addition, elements of the Statement of Work and required FAR and DEAR clauses provide reasonable assurance that objectives and related goals are reviewed and approved.

Contractor procedures translate mission expectations into tasks that permit identification of resource requirements, prioritization, and performance measures to be established consistent with DOE requirements. Procedures provide for DOE approval of proposed tasks and prioritization, feedback and continuous improvement, and change control of approved tasks, prioritization and identification of resources.

The BNI project controls system identifies resource requirements, relative prioritization, and performance measures, and also provides for change control of approved tasks. The system is maintained by approximately 100 full time employees, most of whom are matrixed to the Area Project Manager (APMs). The project controls system appears to be robust and serves as a useful tool for identifying the root cause of performance problems, as well as meeting the requirements of good project management (such as tracking changes).

The project controls system includes two project management software packages, COBRA (performance measurement), and P3 (scheduling). The integration of these two systems enables analysis of cost and schedule variances and performance measurement.

Feeding into the project management software packages are the Engineering Progress and Performance Reporting (EPPR) system, the Plant and Equipment Progress and Performance Reporting (PEPPR) system, the Cost and Commitment (CoCo) system and the Bechtel Procurement System (BPS). Budgeted Cost of Work Scheduled (BCWS) and earned value (Budgeted Cost of Work Performed (BCWP)) are primarily recorded in the EPPR, PEPPR, CoCo and BPS systems.

Section B of the BNI contract defines funding limitations, incentive fees, and method of calculating provisional payments of fee. A contractually binding funding profile is also included in the contract at Section J. The contract statement of work (Section C) describes performance activities, management products and controls, and detailed descriptions for contract deliverables including due dates.

Contract Section H describes special contract requirements and Section I includes standard FAR and DEAR clauses that govern the contract.

The contract includes specific deliverables in the statement of work (Section C, clause C.5). BNI's overall plan for project execution and BNI's ES&H reporting requirements must be concurred upon by DOE. The entire list of deliverables is shown in Section C, Table C.5-1.1, *Deliverables*. BNI procedures are written to be consistent with the approval requirements

included in the contract. Employees interviewed in the business, budgets and contracts organizations of the contractor stated that work procedures provide for feedback and continuous improvement. Trend meetings are an example of one method of providing feedback to BNI and DOE managers, and the meetings also provide a forum for discussions leading to continuous improvement.

DOE contracting procedures require that the requirements of applicable Federal, State, and local regulations (List A) and the requirements of Department of Energy directives (List B) are appended to the contract.

The contract includes the requirement to comply with regulations (List A) and DOE Orders (List B), in clause I.117 “DEAR 970.5204-78 LAWS, REGULATIONS, AND DOE DIRECTIVES (JUN 1997)”. The lists are appended to the contract in Section J.

The ORP has a robust DOE orders/directives management system that ensures changes to the List A/B are incorporated into the contract on a timely basis. The directives management system includes formal Record of Decisions, and a tracking system that provides the status of the process until the contract has been modified.

Contractor procedures provide for flow down of DEAR 952.223-71 “Integration of Environment, Safety and Health into Work Planning and Execution” requirements into subcontracts involving complex or hazardous work.

The contractor’s procedures ensure that all subcontracts include the subject clause. The general conditions placed into each BNI subcontract contain the clause DEAR 952.223-71 “Integration of Environment, Safety and Health into Work Planning and Execution”. Several subcontract files were reviewed to validate that the clause was included in actual practice.

Conclusion:

The BNI process for integration of safety into tasks is accomplished through both procedures and actual practice. Interviews with BNI managers indicate good understanding of ISMS implementation and that safety is adequately incorporated into budgets. Review of procedures and subcontractor files indicate that appropriate ISMS requirements are flowed down to subcontractors. BNI performance objectives are approved and tracked.

There is adequate DOE involvement in defining work scope and translating mission requirements into BNI performance objectives. DOE personnel roles, responsibilities, and authorities are appropriate to support ISMS, and personnel competency is adequate.

DOE and contractor procedures ensure that missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated.

The criteria supporting this objective have been met.

Issue(s):

None

Noteworthy Practices:

None

Inspector: <u> /s/ </u> Jeff Short	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Business, Budget, & Contracts	OBJECTIVE: BBC I-2	DATE: 2/12/03
---	---------------------------	---------------

OBJECTIVE:

DOE and contractor budgeting and resource assignment procedures include a process to ensure the application of balanced priorities. Resources are allocated to address safety, programmatic, and operational considerations. Protecting the public, workers, and environment is a priority whenever activities are planned and performed. (CE I-2, CE I-7)

Criteria

1. The prioritization and allocation process clearly addresses both ES&H and programmatic needs. The process involves line management input and approval of the results.
2. Priorities include commitments and agreements to DOE as well as stakeholders.
3. Contractor procedures provide resources to adequately analyze hazards associated with the work being planned.
4. Contractor procedures for allocating resources include provisions for implementation of hazard controls for tasks being funded.
5. Resource allocations reflect the tailored hazard controls.
6. The incentive and performance fee structure promote balanced priorities.
7. DOE procedures for defining the scope of work ensure balanced priorities. (FRAM 9.2.3)

APPROACH:

Records Review:

Bechtel Procedures, Policies and Records:

- 24590-WTP-ISMSD-ESH-01-001, Rev. 1: *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PL-ESH-02-005, Rev. 1: *ISMS Implementation Master Plan*
- 24590-WTP-G63-SIND-001: *RPP – WTP Health & Safety Policy*
- 24590-WTP-GPP-GPA-00200: *Acquisition*
- 24590-WTP-GPP-GPX-00503: *Award*
- 24590-WTP-GPP-GAB-00106: *Budgeted Cost of Work Performed (BCWP)*
- 24590-WTP-GPP-GAB-00105: *Budgeted Cost of Work Scheduled (BCWS)*

- 24590-WTP-GPP-GAB-00102: *Estimating*
- 24590-WTP-GPP-GPX-00606: *Claims, Disputes*
- 24590-WTP-GPP-CON-4101: *Construction Subcontract Management*
- General Conditions construction subcontracts
- Special Conditions construction subcontracts
- 24590-WTP-GPP-AS-001: *Purchasing Flow Process*
- 24590-WTP-GPP-GPX-00206: *Subcontract/Purchase Order Files*
- 24590-WTP-GPP-GPX-00602: *Subcontract/Purchase Order Modification and Changes*
- 24590-WTP-GPP-CON-7105A: *Subcontractor Submittals*
- 24590-WTP-GPP-GAV-00100: *Contract Management*
- 24590-WTP-GPP-GAV-00102: *Contract Changes and Pending Item Procedure*
- WTP Baseline Change Control Program Plan (Draft Issue – no number)
- 24590-WTP-GPP-GAB-00103: *Trend Program*
- 24590-WTP-GPP-GAB-00108: *Funding Control*
- 24590-WTP-GPG-MGT-001: *Safety/Quality Council*
- 24590-WTP-GPP-SIND-044: *Office Safety*
- 24590-WTP-GPG-SIND-002: *Safety Communication*
- 24590-WTP-GPG-SIND-005A: *Back Injury Prevention*
- 24590-WTP-GPP-QA-206A: *Stop Work*
- 24590-WTP-GPP-SIND-005A *Lessons Learned*
- 24590-WTP-GPP-GPA-00800: *Control of Government Vehicles*
- 24590-WTP-GPP-GPA-00700: *Control of Government Property in Possession of Subcontractors*
- 24590-WTP-GPP-GPX-00404: *Cost Price Analysis*
- 24590-WTP-GPP-GPA-10104: *Direct and Indirect Costs*
- 24590-WTP-GPP-GPX-00603: *Invoice and Payment*
- 24590-WTP-GPP-CTA-001A: *Life-Cycle Cost*
- 24590-WTP-GPP-GPA-00600: *Property Control*
- 24590-WTP-GPP-GPX-00201: *Make or Buy / Lease versus Purchase*
- 24590-WTP-GPP-GPA-00100: *Property Management Program*
- 24590-WTP-GPP-GPA-00300: *Property Records*
- 24590-WTP-GPP-GAA-00105: *Unallowable Costs*
- 24590-WTP-GPP-GAA-00321: *WTP P Card Program*
- 24590-WTP-GPP-AS-002: *P Cards*
- 24590-WTP-GPP-GAA-00313: *Business Trips*
- BSII Instruction 321: *P Cards*
- MOA 091001-01: *Services between Flour and BNI*

DOE Procedures, Policies and Records:

- DOE ORP Acquisition Strategy, Contract Management Description and Performance Status – February 2003 (Draft Document from ORP Office of Project Administration - OPA)
- OPA Workscope Deliverables Database, FY2003
- Bechtel National Inc. (BNI) Contract Management Plan
- CH2M HILL Hanford Group Inc. (CHG) Contract Management Plan
- ORP Approved Project Baseline Summary Sheets from ORP for FY1997 through FY2070

(ORP Memo dated October 24, 2002)

- ORP Budget Request FY2004
- ORPM 450.4: *ORP ISMS Description*
- DOE G 450.4-1B: *ISMS Guide*
- Contract No. DE-AC27-01RV14136 (BNI - WTP)
- Contract No. DE-AC27-99RL14047 (CHG)
- DEAR 952.223-71
- ORPPD 414.1-2: *OPA Quality Assurance Program*
- ORPM 414.1-1: *ORP Quality Assurance Program*
- ORPPD 220.1-8: *OPA Management Assessments*
- ORPM 220.1: *ORP Integrated Assessment Program*
- ORPM 411.1-1 R2, *Safety Management Functions, Responsibilities and Authorities Manual (FRAM)*

Interviews Conducted:

- Manager, Business Services
- Manager, Prime Contracts
- Manager, Controller
- Manager, Deputy Controller
- Manager, Acquisition Services
- Manager, Project Controls
- Manager, Financial Services (WGI)
- Manager, Internal Audit (BSII)
- Manager, Project Archive and Document Control
- Manager, Engineering Processes, Procedures and Personnel

Observations:

- Pretreatment Facility Trend Standing Meeting
- High Level Waste Facility Trend Standing Meeting
- Balance of Facilities Trend Standing Meeting
- Project Issues and Concerns Standing Meeting

Discussion of Results:

The prioritization and allocation process clearly addresses both ES&H and programmatic needs, including commitments to DOE and stakeholders. The process involves line management input and approval of the results.

The contract requires prioritization and allocation processes to clearly address ES&H needs. The project controls system includes approval measures requiring line management input and approval. BNI also has systems in place to ensure that contractually mandated commitments and agreements to DOE and stakeholders are adequately planned and executed.

The BNI contract statement of work (Section C), clause C.4, *Environment, Safety, Quality and*

Health, sets forth basic requirements for the establishment and maintenance of ISMS at the WTP Project. Clause C.6 - Standard 1, *Management Products and Controls*, sets forth requirements to establish management controls and processes utilized to complete contract requirements. Standard 1 requires development of the project execution plan and the project control system description, which are submitted to ORP for concurrence. The project execution plan describes BNI's overall approach to managing the WTP Project. The project control system description includes the approach BNI uses to implement ORP management plans, including communications and stakeholder involvement.

DOE has approved the project baseline which is managed under the BNI project control system. The baseline includes an estimate of the funding necessary to meet all compliance requirements, and maintain safe conditions for WTP facilities and operations. The BNI project controls system identifies resource requirements, relative prioritization, and performance measures, consistent with the work plans that encompass ISMS/ES&H requirements. The project controls system is a useful tool for identifying the root cause of performance problems, and identifying specific ISM/ES&H tasks to ensure they have been adequately planned. The system is maintained by approximately 100 full time employees, most of whom are matrixed to the Area Project Manager (APMs), ensuring adequate project controls are implemented in the field.

Clause C.6 - Standard 7, *Environment, Safety, Quality and Health*, establishes detailed ESQ&H requirements for the WTP Project. This clause also addresses BNI conformance with the authorization basis, permitting, non-radiological worker safety and health; radiological, nuclear, and process safety; environmental protection; and quality assurance.

The health and safety of all employees and subcontractors of BNI is emphasized in Policy No. 24590-WTP-G63-SIND-001, *River Protection Project – Waste Treatment Plant Health & Safety Policy*. This policy mandates that the WTP Management team is responsible for planning and conducting work consistent with the ISMS. The policy states: "A graded approach to work planning based on the risk and complexity of the work is used to implement safe, environmental protective, and cost effective work practices. Work planning is completed for operations and tasks to identify and analyze hazards, develop and implement controls, and perform work safely within the controls. In conducting our daily business, each employee has the right and responsibility to stop work when they discover employee exposure to imminent danger, a serious hazard, or a negative environmental impact that have not been evaluated and mitigated... The WTP management team is committed to the "zero accident" performance philosophy. This philosophy is based on the belief that all accidents and injuries are preventable. Each employee is dedicated to achieving and maintaining a zero accident performance rate by considering safety as the highest priority in the planning, training, and completion of the daily work activities. Through the successful implementation of the zero accident performance philosophy, each employee is expected to go home with the same health and safety as they had when they came to work for the day."

Interviews conducted during this review indicate that management is adhering to the tenets of the above policy.

Contractor procedures provide resources to adequately analyze hazards associated with the work being planned, and provide resources to implement the tailored controls of those hazards.

As described above, BNI contract clause C.4, *Environment, Safety, Quality and Health*, sets forth the basic requirements for the establishment and maintenance of an ISMS at the WTP Project. Clause C.6 - Standard 7, *Environment, Safety, Quality and Health*, establishes the detailed environmental, safety and health (ES&H) requirements for the WTP Project. Standard 7 also addresses BNI conformance with the authorization basis, permitting, non-radiological worker safety and health; radiological, nuclear, and process safety; environmental protection; and quality assurance. The contract includes Table C.5-1.1, which lists contract deliverables for Standard 7.

As a result, contractor procedures provide resources to analyze hazards before work is performed, and a graded (tailored) approach is used to define hazard controls. The resources to analyze hazards and to implement tailored controls are accounted for in the BNI project controls system. The project controls system creates the integrated baseline, which is submitted to DOE for approval.

In the course of the interviews undertaken during this review, the following project procedures that address hazards in the office were encountered: 24590-WTP-GPG-MGT-001 *Safety/Quality Council*; 24590-WTP-GPP-SIND-044 *Office Safety*; 24590-WTP-GPG-SIND-002 *Safety Communication*; 24590-WTP-GPG-SIND-005A *Back Injury Prevention*; 24590-WTP-GPP-QA-206A *Stop Work*; and 24590-WTP-GPP-SIND-005A *Lessons Learned*.

The incentive and performance fee structure promote balanced priorities.

The BNI contract to build the WTP defines funding limitations, incentive fees, and method of calculating provisional payments of fee, in Section B. In addition, a contractually binding funding profile is included in the contract at Section J.

The contract statement of work, (Section C) describes performance activities, management products and controls, and detailed descriptions for contract deliverables including due dates. Contract Section H describes special contract requirements and Section I includes standard Federal Acquisition Regulation (FAR) and Department of Energy Acquisition Regulation (DEAR) clauses that govern the contract.

The above requirements ensure the promotion of balanced priorities. However, it is noted that BNI's current Estimate at Completion (EAC) significantly exceeds the contract target cost. As a result, performance and schedule incentive fees may be taking priority over the cost incentive fee. This could lead to negative behavior related to cost containment that is not in the best interest of the Government. Doe and BNI are currently holding contract negotiations that will resolve this issue.

DOE procedures for defining the scope of work ensure balanced priorities.

ORP Manual 411.1-1 R2, *Safety Management Functions, Responsibilities, and Authorities Manual* (FRAM) describe ORP roles and responsibilities to ensure a satisfactory level of accountability, and authority to define the scope of work. In addition, the BNI scope of work is clearly defined in the contract.

Required DEAR clauses are included in the BNI contract and flowed down to BNI subcontracts. This provides assurance that ISMS is implemented and safety expectations are met, within available budget and resources. These clauses and flow-downs also provide reasonable assurance that all work will be performed within contractually mandated funding limitations.

Conclusion:

Interviews with BNI managers demonstrated their understanding of the priority for assigning resources, the process used for integration of safety into tasks, and the allocation of resources. Procedures and out-year planning documents adequately address the assignment of resources with balanced priorities. Overall, DOE and contractor budgeting and resource assignment procedures include a process to ensure balanced priorities, and allocation of resources to address safety considerations, including protecting the public, workers, and environment whenever activities are planned and performed. The criteria supporting this objective have been met.

Issue(s):

None

Noteworthy Practices:

None

Inspector: <u> /s/ </u> Jeff Short	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Business, Budget, & Contracts	OBJECTIVE: BBC I-3	DATE: 2/12/03
---	---------------------------	----------------------

OBJECTIVE:

The contractor procedures and practices ensure that personnel who define the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities.
(CE I-8)

Criteria

1. Contractor procedures ensure that the personnel including line management who define, prioritize, and approve the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities.
2. Personnel who actually participate in definition of the scope of work and allocate resources demonstrate competence to prioritize and approve work with tailored hazard controls.

APPROACH:

Records Review:

Bechtel Procedures, Policies and Records:

- 24590-WTP-ISMSD-ESH-01-001, Rev. 1: *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PL-ESH-02-005, Rev. 1: *ISMS Implementation Master Plan*
- 24590-WTP-G63-SIND-001: *RPP – WTP Health & Safety Policy*
- 24590-WTP-GPP-GPA-00200: *Acquisition*
- 24590-WTP-GPP-GPX-00503: *Award*
- 24590-WTP-GPP-GAB-00106: *Budgeted Cost of Work Performed (BCWP)*
- 24590-WTP-GPP-GAB-00105: *Budgeted Cost of Work Scheduled (BCWS)*
- 24590-WTP-GPP-GAB-00102: *Estimating*
- 24590-WTP-GPP-GPX-00606: *Claims, Disputes*
- 24590-WTP-GPP-CON-4101: *Construction Subcontract Management*
- General Conditions construction subcontracts
- Special Conditions construction subcontracts
- 24590-WTP-GPP-AS-001: *Purchasing Flow Process*
- 24590-WTP-GPP-GPX-00206: *Subcontract/Purchase Order Files*
- 24590-WTP-GPP-GPX-00602: *Subcontract/Purchase Order Modification and Changes*
- 24590-WTP-GPP-CON-7105A: *Subcontractor Submittals*
- 24590-WTP-GPP-GAV-00100: *Contract Management*
- 24590-WTP-GPP-GAV-00102: *Contract Changes and Pending Item Procedure*
- WTP Baseline Change Control Program Plan (Draft Issue – no number)

- 24590-WTP-GPP-GAB-00103: *Trend Program*
- 24590-WTP-GPP-GAB-00108: *Funding Control*
- 24590-WTP-GPP-MGT-001: *Safety/Quality Council*
- 24590-WTP-GPP-SIND-044: *Office Safety*
- 24590-WTP-GPP-SIND-002: *Safety Communication*
- 24590-WTP-GPP-SIND-005A: *Back Injury Prevention*
- 24590-WTP-GPP-QA-206A: *Stop Work*
- 24590-WTP-GPP-SIND-005A: *Lessons Learned*
- 24590-WTP-G63-HR-003B: *Employee Qualification for Assignment*
- 24590-WTP-GPP-GPA-00800: *Control of Government Vehicles*
- 24590-WTP-GPP-GPA-00700: *Control of Gov. Property in Possession of Subcontractors*
- 24590-WTP-GPP-GPX-00404: *Cost Price Analysis*
- 24590-WTP-GPP-GPA-10104: *Direct and Indirect Costs*
- 24590-WTP-GPP-GPX-00603: *Invoice and Payment*
- 24590-WTP-GPP-CTA-001A: *Life-Cycle Cost*
- 24590-WTP-GPP-GPA-00600: *Property Control*
- 24590-WTP-GPP-GPX-00201: *Make or Buy / Lease versus Purchase*
- 24590-WTP-GPP-GPA-00100: *Property Management Program*
- 24590-WTP-GPP-GPA-00300: *Property Records*
- 24590-WTP-GPP-GAA-00105: *Unallowable Costs*
- 24590-WTP-GPP-GAA-00321: *WTP P Card Program*
- 24590-WTP-GPP-AS-002: *P Cards*
- 24590-WTP-GPP-GAA-00313: *Business Trips*
- BSII Instruction 321: *P Cards*
- MOA 091001-01: *Services between Flour and BNI*

DOE Procedures, Policies and Records:

- DOE ORP Acquisition Strategy, Contract Management Description and Performance Status – February 2003 (Draft Document from ORP Office of Project Administration - OPA)
- OPA Workscope Deliverables Database, FY2003
- Bechtel National Inc. (BNI) Contract Management Plan
- CH2M HILL Hanford Group Inc. (CHG) Contract Management Plan
- ORP Approved Project Baseline Summary Sheets from ORP for FY1997 through FY2070 (ORP Memo dated October 24, 2002)
- ORP Budget Request FY2004
- ORPM 450.4: *ORP ISMS Description*
- DOE G 450.4-1B: *ISMS Guide*
- Contract No. DE-AC27-01RV14136 (BNI - WTP)
- Contract No. DE-AC27-99RL14047 (CHG)
- DEAR 952.223-71
- ORPPD 414.1-2: *OPA Quality Assurance Program*
- ORPM 414.1-1: *ORP Quality Assurance Program*
- ORPPD 220.1-8: *OPA Management Assessments*
- ORPM 220.1: *ORP Integrated Assessment Program*

Interviews Conducted:

- Manager, Business Services
- Manager, Prime Contracts
- Manager, Controller
- Manager, Deputy Controller
- Manager, Acquisition Services
- Manager, Project Controls
- Manager, Financial Services (WGI)
- Manager, Internal Audit (BSII)
- Manager, Project Archive and Document Control
- Manager, Engineering Processes, Procedures and Personnel

Observations:

- Pretreatment Facility Trend Standing Meeting
- High Level Waste Facility Trend Standing Meeting
- Balance of Facilities Trend Standing Meeting
- Project Issues and Concerns Standing Meeting

Discussion of Results:

Contractor procedures ensure that the personnel including line management who define, prioritize, and approve the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities.

The BNI contract includes a requirement that numerous management personnel serve at the behest of the DOE. Such employees, known as “key personnel” are named in the contract, and were approved upon contract award. BNI is subject to penalties when key personnel leave the project if BNI does not adhere to strict requirements when selecting the key person’s replacement.

Section H, clause H .3 “Key Personnel” defines the requirement as follows:

“A listing of Key Personnel on this Contract is provided as Section J, Attachment F, *Key Personnel*. These Key Personnel are considered to be essential to the work being performed on this Contract. Prior to diverting to other positions or substituting any of the specified Key Personnel, or proposing them as a Key person under another contract, the Contractor shall notify the Contracting Officer in writing at least thirty (30) days in advance and shall submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on the work being performed under this Contract. No diversion or substitution shall be made by the Contractor without the written consent of the Contracting Officer, provided that the Contracting Officer may ratify in writing such diversion or substitution and such ratification shall constitute the consent of the Contracting Officer required by this Clause. Unless approved in writing by the Contracting Officer, no Key Personnel position will remain unfilled by a

permanent replacement for more than 60 days. The Key Personnel list shall be amended during the course of the Contract to add or delete Key Personnel as appropriate and as approved by the Contracting Officer... Anytime the Project Manager is replaced or removed for any reason under the Contractor's control within two (2) years of contract award, fee earned will be reduced by the amount of \$1,000,000. In addition, each time any other Key Personnel for the functions of Environment, Safety, Quality, and Health (ESQ&H); Procurement/Contracting; Technology Management; Engineering; Construction Management; and Design Management for Systems, Facilities, and/or Engineering Disciplines are replaced or removed for any reason under the Contractor's control within two (2) years of Contract award, fee earned shall be reduced by the amount of \$500,000 for each removed or replaced individual. DOE will effectuate the appropriate reduction in fee by reducing the next provisional payment due to the Contractor for invoiced fee by the appropriate dollar amount as set forth in this Clause. If no or insufficient provisional fee is due the Contractor within 30 days, the Contractor shall refund to DOE the amount of the reduction due under this Clause. The Contractor may request, in writing, that the Contracting Officer waive all part or part of these reductions in fee, if special circumstances exist. The Contracting Officer shall have unilateral discretion to waive or not to waive all or part of a reduction."

The two year limitation addressed above does not limit DOE's right to approve/disapprove key personnel in the future.

During the course of interviews, policy 24590-WTP-G63-HR-003B, "Employee Qualification for Assignment" was discussed. This policy states that the project will employ only individuals who are qualified by both education and experience for their positions.

The policy goes on to outline the following: "The project will establish a position description for each position. The position description will state the minimum education and experience necessary to perform the duties of the position. Employees will be provided copies of the position description for their position, and may view position descriptions for other positions in which they may have an interest. The project department manager, with Human Resources' assistance, will develop a position description for each position he or she supervises. Employees being considered for positions will be evaluated by education and experience against the established minimum requirements to verify that they meet or exceed these requirements."

Personnel who actually participate in definition of the scope of work and allocate resources demonstrate competence to prioritize and approve work with tailored hazard controls.

The managers that participate in the definition of the scope of work and who allocate resources are included in the Key Personnel listing of the contract. They are:

Project Manager	Operations Manager
Deputy Project Manager	Research and Technology Manager
Area Project Manager, Balance of Facilities	Process Technology Manager
Area Project Manager, High-Level Waste	Commissioning Manager
Area Project Manager, Low-Activity Waste	Engineering Manager
Area Project Manager, Pretreatment	Construction Manager
ES&H Manager	Labor Relations Manager
Quality Assurance Manager	Business/Project Controls Manager
	Prime Contract Manager
	Human Resources Manager

Lower level managers are qualified for their positions under standard BNI Human Resources practices. In addition, the BNI project controls system includes internal controls that ensure that all employees who are responsible for definition of work scope and resource allocation are adequately qualified to make those decisions and inputs.

Conclusion:

Based on a review of appropriate documents and interviews with various managers, there is qualification criteria that support verifying competence to fill the positions. Interviewed managers displayed competence in prioritizing and approving work with tailored hazard controls. The contractor procedures and practices ensure that personnel who define the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities. The criteria supporting this objective have been met.

Issue(s):

None.

Noteworthy Practices:

None

Inspector: <u> /s/ </u> Jeff Short	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Department of Energy	OBJECTIVE: DOE I-1	DATE: 2/12/03
--	---------------------------	----------------------

OBJECTIVE:

DOE has established processes that interface efficiently and effectively with the contractor's organization to ensure that work is performed safely. (CE I-2, CE I-7, CE I-8, CE I-9)

Criteria:

1. ORP has established clear roles and responsibilities to ensure that work is performed within controls and that responsibility lies with line management.
2. ORP procedures ensure that personnel who review or oversee the performance of work have competence commensurate with the responsibilities to which they are assigned.
3. ORP procedures ensure that priorities are balanced so that work is performed within controls.
4. ORP procedures or processes are in place and effective to require work readiness be properly verified and authorized before work commences within appropriate controls.
5. ORP procedures have clearly defined roles and responsibilities for personnel assigned to oversee, review, and approve the analysis of hazards and controls associated with facilities and activities.
6. ORP procedures require that personnel responsible for approving hazards analyses and controls have competence commensurate with their responsibilities.

APPROACH:

Records Review:

- ORP Organizational Chart, Draft, January 14, 2003
- DOE/ORP-2002-21, *Project Execution Plan for the River Protection Project Waste Treatment and Immobilization Plant*, January, 2003
- ORP ID 110.1A, *Office of River Protection Facility Representative Program*, July 26, 2000
- ORP M 210.3, *ORP Quality Trending*, February 19, 2002
- ORP M 220.1 R1, *ORP Integrated Assessment Program*, May 16, 2002
- ORP M 220.1-1 R2, *ORP Management and Independent Assessments*, October 16, 2002
- ORP PD 220.1-1, *Conduct of AMSQ Assessments*, August 24, 2001
- ORP PD 220.1-4 R1, *ESQ Surveillances*, November 20, 2002
- ORP PD 220.1-6, *Qualification and Certification of Quality Assurance Assessment and Assessment Lead Personnel*, October 15, 2002

- ORP M 250.1, *ORP Directives Requirements Management System Manual*, September 3, 2002
- ORP M 251.1, *ORP Directives Requirements Management System Manual*, October 24, 2001
- ORP M 360.1, *Training and Qualifications*, November 19, 2001
- ORP M 411.1-1, R2, *Safety Management Functions, Responsibilities, and Authorities Manual for the U.S. Department of Energy, Office of River Protection*, Draft
- ORP M 412.1, *Consolidated Action Reporting System (CARS)*, August 8, 2001
- ORP PD 413.3-1, *WTP Baseline Change Control*, January 30, 2003, Draft
- ORP M 414.1-1 R1, *Quality Assurance Program Description*, January 15, 2003
- ORP M 414.1-4 R2, *WTP Balance-of-Plant Construction Oversight Program*, October 9, 2002
- ORP PD 414.1, *River Protection Project Quality Assurance Policy*, December 5, 2000
- ORP PD 414.1-2, *Office of Business and Administration Quality Assurance Program*, July 26, 2002
- ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*, August 10, 2001
- ORP N 440.1, *Federal Employee Occupational Safety and Health (FEOSH) Program*, July 25, 2002
- ORP ID 450.2-1, *Review and Approval of Standard/Requirements Identification Documents (S/RIDS)*, March 23, 2001
- ORP M 450.4, *Integrated Safety Management System Description*, August 8, 2002
- RL/REG-2000-03, *Review Guidance for the Nonradiological Worker Safety and Health Plan*, May 4, 2001
- Inspection Technical Procedure I-160, *Industrial Health and Safety Program Inspection*, May 18, 2001
- Inspection Technical Procedure I-162, *Industrial Health and Safety Inspection*, May 18, 2001
- RIMS Document, *Federal Employee Occupational Safety and Health (FEOSH), Hanford's Program*, May, 2002
- DOE ORP Oversight Schedule – Assessments, Inspections and Surveillances, January 20, 2003
- Letter, ORP to BNI, *Contract No. DE-AC27-01RV14136 – Office of Safety Regulation Approval of Bechtel National, INC (BNI) Nonradiological Worker Safety and Health Plan*, June 5, 2001
- 24590-WTP-ISMSD-ESH-01-001, Rev 0, *WTP Project Integrated Safety Management System Description*
- WTP Contract No. DE-AC27-01RV14136, Primarily, Standard 7, *Environment, Safety, Quality and Health*, of Section C and Section I.105, *Dear 952-223-71 Integration of Environment, Safety and Health into Work Planning and Execution (Jun 1997)*
- Trend Notice No. TN-24590-02-00758, *Implement IBC 2000 for Non-Structural Applications*, January 24, 2003, Draft
- Tank Farms Operations Daily Reports, sample of January/February reports
- 24590-WTP-PL-MG-01-001, Rev 0, *Interface Management Plan*, January 28, 2002
- Interface Team List for Interface Control Documents, January 15, 2003
- Letters, ORP, various Dates, *Contract No. DE-AC27-01RV14136 – Acceptance of Deliverable Item C.9.1, Interface Control Documents (ICD)*
- ICDs – sample

- ORP-105 Form, *ORP Directives Record of Decision Form*, for DOE O 450.1, February 6, 2003, and for DOE O 425.1B, September 5, 2002
- A-03-OSR-RPPWTP-001, *On-location Inspection Report for the Period October 11 through December 4, 2002* (consolidated inspection report for DOE ORP On-location inspector, construction site representative and facility representative)
- Integrated Project Team Trend Review Checklist, Draft
- Charter, ORP Facility Integration Project Teams, October 29, 2002
- OSR Work Plan, February 5, 20
- ORP/OSR-2002-18, *Safety Evaluation Report for Waste Treatment and Immobilization Plant (WTP) Construction Authorization*, November 13, 2002
- Memorandum, ORP Manager, *Interim Management Walkthrough Program*, October 21, 2002

Interviews Conducted:

- Manager, ORP
- Assistant Manager, Waste Treatment and Immobilization Plant (AMWTP)
- WTP Federal Project Managers for HLW, LAW, and PT
- WTP Site and Facility Representatives
- Director, WTP Project Integration and Controls Division (WIC)
- WIC Interface Control Document coordinator
- WIC Project Control Estimators
- Director, WTP Engineering and Commissioning Division (WEC)
- Director, Office of Environmental Safety and Quality (ESQ)
- Team Lead, ESQ Safety and Standards Team
- Team Lead, ESQ Verification and Confirmation Team
- Team Lead, ESQ Quality and Industrial Safety Team (QIS)
- On-Location Inspector, ESQ Verification and Confirmation Team
- Director, ESQ Environmental Division
- Director, Office of Project Administration (OPA)
- ORP Executive Officer
- Director, Tank Farms Operations Division

Observations:

- ORP Manager's Staff Meeting
- Joint ORP/BNI Meeting, "Project Issues and Concerns Meeting"
- WTP Safety Regulation Division (OSR) Status Meeting
- AMWTP daily staff meeting
- Construction site walk down with DOE Site Rep., On-site Inspector & Verification & Confirmation Team Lead

Discussion of Results:

ORP has established clear roles and responsibilities to ensure that work is performed within controls and that responsibility lies with line management.

The Office of River Protection (ORP) had a new Manager assigned in mid 2002, and has since undergone a major reorganization. The ORP *Safety Management Functions, Responsibilities, and Authorities Manual* (FRAM) is currently under revision to reflect these changes and to realign the functions and responsibilities that now apply to the staff. The current draft was near final during the ISMS review and was used as the basis for this ISMS verification. The thrust of the ORP management restructuring appears to provide: strong line ownership of the WTP work being done; clear roles, responsibilities and communication; and more efficient use of the decreasing federal staff. In a memorandum from the ORP Manager to the Office of Environmental Management (EM), dated January 28, 2003, ORP indicated the revision of the FRAM was to be complete by January 31, 2003. ORP should expedite the final publication of the FRAM, to formally establish the present working organization.

The draft ORP FRAM assigns the appropriate DOE FRAM and EM delegations in a logical manner that emphasizes line management through the Assistant Manager for WTP. The most recent version of the ORP Organizational Chart and the recently developed DOE/ORP-2002-21, *Project Execution Plan for the River Protection Project Waste Treatment and Immobilization Plant*, January, 2003, provide top-level documentation on how environment, safety and health is integrated into ORP activities. The primary functions and responsibilities are assigned to the AMWTP, with support provided by the functional areas ESQ and OPA.

ORP also maintains ORP M 450.4, *Integrated Safety Management System Description*, to show how ORP meets the ISM core function and guiding principles. The ORP ISMS description document should be updated to clearly reflect the mechanisms that will be used to allow the ORP Manager to make an annual ISMS declaration as required by memorandum, EM-1, December 19, 2002, *Submittal of Annual Integrated Safety Management System Declarations*. This update should describe how ORP will provide direction to its prime contractors on the schedule for deliverables (schedule, assessment and verification approach, annual summary report and necessary contractor ISMS description updates) to ensure ORP is in a position to meet the EM-1 designated annual September 30th date for submittal of ISMS declarations.

Section I.105, *DEAR 952.223-71, Integration of Environment, Safety and Health into Work Planning and Execution*, Subsections C and D, requires ORP to establish with the WTP contractor a set of annual Performance Objectives, Performance Measures and Commitments (POMC) based on DOE program and budget execution guidance. The FRAM 9.2.2.4 also requires the Field Office Manager to approve the POMC. While the BNI ISMS Description indicates that the POMC would be done, it did not specify when and how it would be accomplished. ORP and BNI were unable to provide documentation that ORP requested or was provided POMC documentation. ORP has not provided clear direction to the WTP contractor for the development of the POMC and the annual review and renewal of WTP PMOC (**DOE I-1.1**).

ORP procedures ensure that personnel who review or oversee the performance of work have competence commensurate with the responsibilities to which they are assigned. ORP procedures require that personnel responsible for approving hazards analyses and controls have competence commensurate with their responsibilities.

ORP utilizes several procedures (including, but not limited to, ORP 110.1A, *ORP Facility Representative Program*; ORP PD 220.1-6, *Qualification and Certification of Quality Assurance Assessment and Assessment Lead Personnel*; ORP M 360.1, *Training and Qualifications*, and RL/REG 97-5 [Directive/Handbook 4.1 on Staff Competence]; ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*; and IAP-A-109, *Inspector Qualification Program*) to assure personnel who review or oversee the performance of work, as well as approving hazard analyses and controls, are trained and qualified for their areas of responsibility.

The reassignment of a Tank Farms facility representative to the WTP and the pending addition of an additional facility representative will require the development of a qualification program on the WTP. The ORP is planning to have this additional facility representative qualifications program implemented in July 2003.

A review of the training and qualification management records provided indicates personnel have met training and technical qualification standards. The ORP Manager indicated ORP plans to recruit a fully qualified Fire Protection Engineer to fill a recognized skills gap.

ORP procedures ensure that priorities are balanced so that work is performed within controls.

ORP procedures ensure priorities of design, establishment of standards, cost control, operability and hazard controls are balanced. The ORP AMWTP line has a Federal Project Manager (FPM) for each major facility being constructed. The Project Execution Plan for the WTP assigns the FPM broad responsibilities for all aspects of the project related to his/her facility. Each FPM is the head of an Integrated Project Team (IPT) composed of qualified experts in the fields of: safety authorization basis; fire protection and industrial health and safety; environmental and permitting; engineering, construction, commissioning and operations; and cost and schedule. An IPT Charter has been developed to show how the team works together to ensure all competing priorities of the project are well understood and are fully considered as the design, construction and development of the safety envelope of the facility progresses. Several FPM and several IPT members were interviewed. All were aware of their roles and were supportive of this approach to managing and overseeing contractor work.

In addition, there is a "Waste Treatment and Immobilization Plant Integrated Project Team" that consists of ORP senior management and BNI management that serves to balance competing priorities across all the WTP facilities.

ORP is developing a procedure to institutionalize how "trends," or changes to the contract/design, are analyzed and approved. A joint meeting between AMWTP and senior BNI managers was observed where issues and potential trends were evaluated. The forum provided

for a frank discussion on the issues, including how proposed changes to selected standards would affect both safety and cost of the project.

Also, see CRAD BBC I-1 for additional information on the Business, Budget and Contract aspects that responds to this criterion.

ORP procedures have clearly defined roles and responsibilities for personnel assigned to oversee, review, and approve the analysis of hazards and controls associated with facilities and activities.

Standard 7, *Environment, Safety, Quality, and Health*, Section C of the WTP contract, lays out a comprehensive set of “regulatory” procedures and standards for ORP to use in the evaluation of safety analysis reports, construction authorizations, authorization bases, and the development of safety evaluation reports.

Also see CRAD HAZ I-1 for additional information on Hazards Identification and Standards Selection aspects that responds to this criterion.

ORP procedures or processes are in place and effective to require work readiness be properly verified and authorized before work commences within appropriate controls.

ORP has established contractual requirements and procedures to ensure contractor readiness to perform work. The AMWTP performs design review assessments. The ESQ OSR conducts comprehensive verification inspections based on the approved standards and authorization basis. These verification inspections include engineering, quality assurance, and construction. The assigned construction site representative and the facility representative provide on-location daily oversight of the construction activities, including industrial health and safety.

The DOE O 425.1B on Operational Readiness Reviews is not currently in the WTP contract; however, ORP is in the process of negotiating with BNI to include this requirement in the contract. This will be important for planning readiness activities for commissioning of the WTP.

Conclusion:

ORP has established strong interfaces with BNI management to ensure work is being performed safely, and competing priorities are appropriately balanced between safety and production. ORP has established clear roles, responsibilities and lines of communication to ensure work is performed safely. Procedures are in place to assure hazards are identified, controls are defined, and readiness is assured. Personnel are trained and qualified to perform assigned responsibilities. The criteria for this objective have been met.

Issues:

DOE I-1.1: ORP has not provided clear direction to the WTP contractor for the development of Performance Objectives, Performance Measures and Commitments (POMC) and the annual review and renewal of WTP POMC in accordance with the DOE ISM DEAR clause.

Noteworthy Practices:

None.

Inspector: <u> /s/ </u> Terry Krietz	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Department of Energy	OBJECTIVE: DOE I-2	DATE: 2/12/03
--	---------------------------	----------------------

OBJECTIVE:

ORP has established processes that interface efficiently and effectively with the contractor's organization to provide feedback and continuous improvement. Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur. (CE I-6, CE I-7, CE I-8, CE I-9)

Criteria:

1. ORP procedures describe clear roles and responsibilities to provide feedback and continuous improvement.
2. ORP procedures ensure that competence is commensurate with the responsibilities to provide feedback and continuous improvement.
3. ORP procedures ensure that feedback is provided and continuous improvement results in the identification of safety standards and requirements.
4. ORP procedures ensure that feedback is provided and continuous improvement results in the tailored hazard controls of the work being performed.
5. ORP procedures promote the continuous improvement and efficiency of operations.
6. ORP priorities are balanced and corrective actions are developed, implemented, and tracked in order to profit from prior experience and the lessons learned.
7. ORP procedures provide line oversight of the contractor's self-assessment programs and QA programs.

APPROACH:

Records Review:

- ORP Organizational Chart, Draft, 1/14/03
- DOE/ORP-2002-21, *Project Execution Plan for the River Protection Project Waste Treatment and Immobilization Plant*, January, 2003
- ORP ID 110.1A, *Office of River Protection Facility Representative Program*, July 26, 2000
- ORP M 210.3, *ORP Quality Trending*, February 19, 2002
- ORP M 220.1 R1, *ORP Integrated Assessment Program*, May 16, 2002
- ORP M 220.1-1 R2, *ORP Management and Independent Assessments*, October 16, 2002
- ORP PD 220.1-1, *Conduct of AMSQ Assessments*, August 24, 2001

- ORP PD 220.1-4 R1, *ESQ Surveillances*, November 20, 2002
- ORP PD 220.1-6, *Qualification and Certification of Quality Assurance Assessment and Assessment Lead Personnel*, October 15, 2002
- ORP M 232.2 R1, *ORP Lessons Learned Program*, January 27, 2003
- ORP M 250.1, *ORP Directives Requirements Management System Manual*, September 3, 2002
- ORP M 251.1, *ORP Directives Requirements Management System Manual*, October 24, 2001
- ORP M 360.1, *Training and Qualifications*, November 19, 2001
- ORP M 411.1-1, R2, *Safety Management Functions, Responsibilities, and Authorities Manual for the U.S. Department of Energy, Office of River Protection*, Draft
- ORP M 412.1, *Consolidated Action Reporting System (CARS)*, August 8, 2001
- ORP PD 413.3-1, *WTP Baseline Change Control*, January 30, 2003, Draft
- ORP M 414.1-1 R1, *Quality Assurance Program Description*, January 15, 2003
- ORP M 414.1-4 R2, *WTP Balance-of-Plant Construction Oversight Program*, October 9, 2002
- ORP PD 414.1, *River Protection Project Quality Assurance Policy*, December 5, 2000
- ORP PD 414.1-2, *Office of Business and Administration Quality Assurance Program*, July 26, 2002
- ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*, August 10, 2001
- ORP N 440.1, *Federal Employee Occupational Safety and Health (FEOSH) Program*, July 25, 2002
- ORP ID 450.2-1, *Review and Approval of Standard/Requirements Identification Documents (S/RIDS)*, March 23, 2001
- ORP M 450.4, *Integrated Safety Management System Description*, August 8, 2002
- RL/REG-2000-03, *Review Guidance for the Nonradiological Worker Safety and Health Plan*, May 4, 2001
- Inspection Technical Procedure I-160, *Industrial Health and Safety Program Inspection*, May 18, 2001
- Inspection Technical Procedure I-162, *Industrial Health and Safety Inspection*, May 18, 2001
- RIMS Document, *Federal Employee Occupational Safety and Health (FEOSH), Hanford's Program*, May, 2002
- DOE ORP Oversight Schedule – Assessments, Inspections and Surveillances, January 20, 2003
- Letter, ORP to BNI, *Contract No. DE-AC27-01RV14136 – Office of Safety Regulation Approval of Bechtel National, INC (BNI) Nonradiological Worker Safety and Health Plan*, June 5, 2001
- 24590-WTP-ISMSD-ESH-01-001, Rev 0, *WTP Project Integrated Safety Management System Description*
- WTP Contract No. DE-AC27-01RV14136, Primarily, Standard 7, *Environment, Safety, Quality and Health*, of Section C and Section I.105, *Dear 952-223-71 Integration of Environment, Safety and Health into Work Planning and Execution (Jun 1997)*
- Trend Notice No. TN-24590-02-00758, *Implement IBC 2000 for Non-Structural Applications*, January 24, 2003, Draft
- Tank Farms Operations Daily Reports, sample of January/February reports
- 24590-WTP-PL-MG-01-001, Rev 0, *Interface Management Plan*, January 28, 2002

- Interface Team List for Interface Control Documents, January 15, 2003
- Letters, ORP, various Dates, *Contract No. DE-AC27-01RV14136 – Acceptance of Deliverable Item C.9.1, Interface Control Documents (ICD)*
- ICDs – sample
- ORP-105 Form, *ORP Directives Record of Decision Form*, for DOE O 450.1, February 6, 2003, and for DOE O 425.1B, September 5, 2002
- A-03-OSR-RPPWTP-001, *On-location Inspection Report for the Period October 11 through December 4, 2002* (consolidated inspection report for DOE ORP On-location inspector, construction site representative and facility representative)
- Integrated Project Team Trend Review Checklist, Draft
- Charter, ORP Facility Integration Project Teams, October 29, 2002
- OSR Work Plan, February 5, 2003
- ORP/OSR-2002-18, *Safety Evaluation Report for Waste Treatment and Immobilization Plant (WTP) Construction Authorization*, November 13, 2002
- Memorandum, ORP Manager, *Interim Management Walkthrough Program*, October 21, 2002

Interviews Conducted:

- Manager, ORP
- Assistant Manager, Waste Treatment and Immobilization Plant (WTP)
- WTP Federal Project Managers for HLW, LAW, and PT
- WTP Site and Facility Representatives
- Director, WTP Project Integration and Controls Division (WIC)
- WIC Interface Control Document coordinator
- WIC Project Control Estimators
- Director, WTP Engineering and Commissioning Division (WEC)
- Director, Office of Environmental Safety and Quality (ESQ)
- Team Lead, ESQ Safety and Standards Team
- Team Lead, ESQ Verification and Confirmation Team
- Team Lead, ESQ Quality and Industrial Safety Team (QIS)
- On-Location Inspector, ESQ Verification and Confirmation Team
- Director, ESQ Environmental Division
- Director, Office of Project Administration (OPA)
- ORP Executive Officer
- Director, Tank Farms Operations Division

Observations:

- ORP Manager's Staff Meeting
- Joint ORP/BNI Meeting, "Project Issues and Concerns Meeting"
- On-Location Representative daily oversight
- Demonstration and use of ORP Consolidated Action Reporting System (CARS)

Discussion of Results:

ORP procedures describe clear roles and responsibilities to provide feedback and continuous improvement. ORP procedures promote the continuous improvement and efficiency of operations.

The ORP *Safety Management Functions, Responsibilities, and Authorities Manual* (FRAM) is currently under revision to reflect changes and to realign the functions and responsibilities that are now being followed by the staff. The FRAM assigns responsibility to ORP organizations for overseeing both ORP and contractor work and for providing feedback for improvement opportunities. Several ORP procedures have been established to further describe clear roles and responsibilities in the area of: line oversight; independent ESQ surveillances, inspections, and technical reviews; management assessments (ORP self-assessment); use of a Consolidated Action Reporting System; and quality trending and identification of lessons learned actions needed.

The ORP Manager initiated an Interim Management Walkthrough program in October 2002, and plans to incorporate the procedure into ORP M 220.1, *ORP Integrated Assessment Program* (currently undergoing revision). The lack of an ORP management walkthrough program was noted in an earlier ISMS review of the Tank Farm Contractor in September 2002. Records indicate good participation in the walkthrough program by managers, and the overall goal established for senior managers to spend time conducting walkthroughs was being met. However, the records provided indicates a small number of ORP managers have not yet participated in the management walkthrough process.

ORP procedures ensure that competence is commensurate with the responsibilities to provide feedback and continuous improvement.

ORP utilizes several procedures (including, but not limited to ORP 110.1A, *ORP Facility Representative Program*; ORP PD 220.1-6, *Qualification and Certification of Quality Assurance Assessment and Assessment Lead Personnel*; ORP M 360.1, *Training and Qualifications*; ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*; and IAP-A-109, *Inspector Qualification Program*) to assure personnel who review or oversee the performance of work, as well as providing feedback and improvement, are trained and qualified for their areas of responsibility.

A review of the training and qualification management records provided indicate personnel have met training and technical qualification standards. As DOE and ORP directives are released, ORP has a procedure to identify the type of training necessary to implement the new or revised directive.

ORP procedures ensure that feedback is provided and continuous improvement results in the identification of safety standards and requirements. ORP procedures ensure that feedback is provided and continuous improvement results in the tailored hazard controls of the work being performed.

ORP M 250.1 establishes procedures for reviewing DOE and other external requirements for

applicability to ORP and its contractors. This ORP procedure describes how to manage external directive requirements. Several records of decisions on DOE directives were reviewed and were found to be clear on the ORP disposition of the directive requirements. ORP M 251.1 provides the process for ORP to identify need for, evaluate implementation impacts, and managements of ORP directives.

The WTP contract and ESQ OSR “J” (DOE/RL-96-0003, -0004, -0005, -0006) and other documents provide for a systematic approach to selecting safety standards applicable to the design and operation of the WTP. A Safety Requirements Document is maintained under configuration control and all proposed changes undergo a review by the OSR to ensure the original hazards analysis remains valid and the proposed revised standard still adequately addresses the hazards identified.

ORP priorities are balanced and corrective actions are developed, implemented, and tracked in order to profit from prior experience and the lessons learned.

See CRAD DOE I-1 and CRAD BBC I-1 for discussion on balanced priorities. ORP M 412.1, *Consolidated Action Reporting System*, requires that ORP corrective actions be tracked in the web-based Consolidated Action Reporting System (CARS).

ORP M 232.2 R1, *ORP Lessons Learned Program*, outlines how ORP implements its lessons learned program. While the ESQ OSR group maintains lessons learned that apply to its functional area, ORP, as a whole, has not been active in reviewing and generating lessons learned. No CARS actions were provided that were created as a result of a lessons learned (an ORP 232.2 requirement) and a review of the DOE Lessons Learned program web page indicates ORP has not been providing reports for DOE-wide use. A recent quarterly trend report indicates that there has been insufficient data in the area of lessons learned for analysis. ORP has not fully implemented its lessons learned program and should aggressively promote the identification and use of lessons learned (**DOE I-2.1**).

ORP procedures provide line oversight of the contractor’s self-assessment programs and QA programs.

ORP has established a QA policy and procedure. In addition, OPA has established a separate QA procedure, ORP PD 414.1-2, *Office of Business Administration Quality Assurance Program*. The practice of establishing specific QA procedures for business and contract management is important, but seldom practiced. The creation and implementation of a comprehensive QA program for business and contract management is noteworthy (**DOE I-2.2**).

ORP contractor oversight procedures include detailed processes for planning, conducting, assuring trained and qualified assessment personnel, and documentation of contractor QA programs. The current ORP Oversight Schedule for Assessments, Inspections, and Surveillances identifies QA assessments for the WTP this fiscal year. ESQ QIS began conducting QA programmatic assessments of the Tank Farm Contractor based on 10 CFR 830, Subpart A, criteria during the ISMS verification. Facility representative procedures provide for daily observation of work activities at the site.

Conclusion:

Sufficient procedures have been established to conduct line oversight of the contractor, document and track corrective actions, and provide feedback and improvement. The criteria for this objective have been met.

Issues:

DOE I-2.1: ORP has not fully implemented its lessons learned program and should aggressively promote the identification and use of lessons learned.

Noteworthy Practices:

DOE I-2.2: The creation and implementation of a comprehensive QA program for business and contract management is noteworthy.

Inspector: <u> /s/ </u> Terry Krietz	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Hazards Identification and Standard Selection	OBJECTIVE: HAZ I-1	DATE: 2/12/03
---	---------------------------	----------------------

OBJECTIVE:

Hazards associated with the work are identified, analyzed, and categorized.
(CE I-3, CE I-9)

Criteria

1. Contractor and DOE procedures require identification, analysis, and categorization of all hazards associated with the site. Contractor ISMS procedures for analysis of hazards reflect accepted rigor and methodology. The resulting hazards are utilized in selection of standards included in the contract as List A/List B.
2. Contractor procedures require identification, analysis, and categorization of all hazards associated with facilities or activities. Hazards that are considered include nuclear, chemical, industrial or others applicable to the work being considered. Contractor procedures for analysis of hazards reflect accepted rigor and methodology.
3. DOE procedures and mechanisms are in place and implemented to ensure that BNI's hazard analysis is comprehensive, tailored to risk, and sufficient for selecting standards.

NOTE: This Form 1 is divided into two parts. Part I focuses on the design process from the contract requirements through Engineering Design Documentation. Part II addresses the interface between Engineering and Construction activities in the field.

PART 1 APPROACH:

Records Review:

- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PSAR-ESH-01-002-04, Rev. 0, *Preliminary Safety Analysis Report to Support Construction Authorization; General Information Vols. 1 & 2*
- 24590-WTP-PSAR-ESH-01-002-04, Rev. 0, *Preliminary Safety Analysis Report to Support Construction Authorization; HLW Facility Specific Information,*
- ORP/OSR-2002-18, *Safety Evaluation Report for Waste Treatment and Immobilization Plant (WTP) Construction Authorization*
- 24590-WTP-GPP-SANA-002, Rev. 4, *Hazard Analysis, Development of Hazard Control Strategies, and Identification of Standards*
- DOE/RL-96-0004, Rev. 2, *Process for Establishing a Set of Radiological, Nuclear, and Process Safety Standards and Requirements for the RPP Waste Treatment Plant Contractor*

- DOE/RL-96-0003, Rev. 2, *DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor*
- 24590-WTP-PL-ESH-02-005, Rev. 1, *Integrated Safety Management System (ISM) Implementation Master Plan*
- 24590-WTP-PL-TE-01-012, Rev. 0, *Project Execution Plan*
- *Hanford Waste Treatment Plant Project Integrated Safety Management System Pre-Phase I/II Independent Assessment Final Report*, 01/10/03
- 24590-WTP-GPG-SENV-001, *Environmental Requirements and Regulatory Guidelines*
- 24590-WTP-GPP-SENV-010, Rev. 2, *WTP Environmental Permit Maintenance*
- 24590-WTP-GPG-ENG-028A, Rev.1, *Dangerous Waste Permit Engineering Documents*
- 24590-WTP-GPP-SENV-009, Rev. 1, *Environmental Permits*
- 24590-WTP-GPP-SENV-016_0, *Identification and Management of Environmental Permits*
- 24590-WTP-Z0C-50-00001, *Accident Analysis for Aircraft Crash into a RPP-WTP Facility*
- 24590-PTF-Z0C-W14T-00030, *Design Basis Event—Runaway Nitric Acid/Resin Reaction in Cesium Ion Exchange Column*
- 24590-HLW-Z0C-W14T-00013, Rev. B, *Revised Severity Level Calculations for the HLW Facility*
- 24590-WTP-GPG-SANA-001, Rev. 1, *Standards Identification Process Database*
- DOE/ORP Response to Defense Nuclear Facilities Safety Board (DNFSB) Comments in DNFSB Letter dated November 4, 2002
- 24590-101-TSA-W000-0004-120-03-004, *Analytical Models Describing Global Hydrogen Retention and Release in WTP Mixing Vessels*, Battelle

Interviews Conducted:

- Environmental and Nuclear Safety Manager
- Radiological, Nuclear and Process Safety Manager
- Area Project Engineer (2)
- Environmental Integration Lead

Observations:

N/A

Part 1 Discussion of Results:

Contractor and DOE procedures require identification, analysis, and categorization of all hazards associated with the site. Contractor ISMS procedures for analysis of hazards reflect accepted rigor and methodology. The resulting hazards are utilized in selection of standards included in the contract as List A/List B.

Contractor procedures require identification, analysis, and categorization of all hazards associated with facilities or activities. Hazards that are considered include nuclear, chemical, industrial or others applicable to the work being considered. Contractor procedures for analysis of hazards reflect accepted rigor and methodology.

DOE procedures and mechanisms are in place and implemented to ensure that BNI's hazard analysis is comprehensive, tailored to risk, and sufficient for selecting standards.

The WTP Contractor Team is following DOE Office of River Protection (ORP), Office of Safety Regulation (OSR) directives in the preparation of the Preliminary Safety Analysis Report (PSAR) for the River Protection Project (RPP) Waste Treatment Plant (WTP). The Contract between DOE and BNI provides a list of applicable regulatory drivers and additional directives for the WTP Project. This list is provided as Attachment E in Section J of the contract (List B-DEAR 970.5208.78) and includes the referenced directives requiring identification, analysis, and categorization of all hazards associated with the site. Contractor ISMS procedures for analysis of hazards reflect accepted rigor and methodology. The resulting hazards are utilized in selection of standards included in the contract as List B.

Contractor procedures require identification, analysis, and categorization of all hazards associated with facilities or activities. Hazards reviewed include nuclear, chemical, industrial or others applicable to the work being considered. The PSAR contains a General Chapter and individual chapters covering each of the WTP Nuclear Facilities; the Pre-treatment (PT) Facility, the High Level Waste (HLW) Facility, the Low Activity Waste (LAW) Facility and the Laboratory Facility. The HLW Facility was reviewed for compliance with requirements. Appendix A of the HLW PSAR contains the Hazards Assessment Report. It is a substantial listing of potential accidents that were considered as initiating events for the safety analysis of the HLW Facility. The resulting analyses considered nuclear, chemical and industrial hazard impacts on the public, facility worker and the co-located worker as required by the DOE process.

Contractor procedures for analysis of hazards reflect accepted rigor and methodology. Three calculation packages were reviewed for compliance to procedural requirements. Each of the calculations considered postulated accidents and compared unmitigated exposure calculations to three receptors: workers, co-located workers and the public. The exposure guidelines used were the ones from the required directives and guidance.

A DOE letter response to DNFSB findings regarding the safety analysis process was reviewed. Responses to two findings were examined for compliance with commitments made in the letter. The issues involved (1) hydrogen generation in WTP processing, and (2) determining Important to Safety (ITS) designations on systems, structures, and components (SSC) based on unmitigated conditions during the safety analyses. The hydrogen generation issue resulted in reexamination of the methodology used; one report from Battelle was complete and recalculation packages were complete and in the review process. The discussion and rationale regarding the ITS designation based on unmitigated conditions was reasonable and should result in clarification of the process.

DOE procedures and mechanisms are in place and implemented to ensure that BNI's hazard analysis is comprehensive, tailored to risk, and sufficient for selecting standards. DOE has issued a comprehensive Safety Evaluation Report (SER) to authorize partial construction and to document the review of the contractor's PSARs. Other evidence of DOE's reviews of other safety basis activities was noted during the review. (The DOE SER process is also discussed in CRAD DOE I-2.)

PART 2 APPROACH

Records Review:

- 24590-WTP-GPP-SANA-002, *Hazard Analysis, Development of Hazard Controls and Identification of Standards*
- 24590-WTP-PL-IS-01-001, *Non-Radiation Worker Safety and Health Plan*
- 24590-WTP-GPG-SENV-001, *Environmental Requirements and Regulatory Guidelines*
- 24590-WTP-PL-MG-01-002, *Configuration Management Plan*
- 24590-WTP-GPP-CON-1201, *Construction Work Packages*
- 24590-WTP-GPG-CON-1203, *Construction Work Packages*
- 24590-WTP-GPP-CON-3105, *Construction Work Packages, Special Instructions*
- 24590-WTP-G63-HR-003, *Employee Qualifications for Assignment*
- 24590-WTP-G63-HR-004, *Career Development and Training*
- 24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document*
- 24590-WTP-GPP-CON-4101, *Construction Subcontract Management*
- 24590-WTP-GPP-SIND-002, *STARRT/JHA Procedure*
- 24590-WTP-PL-ENV-01-005, *WTP Construction Environmental Control Plan*
- 24590-WTP-PL-ESH-02-005, Rev. 1, *Integrated Safety Management System (ISM) Implementation Master Plan*
- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PL-TE-01-012, Rev. 0, *Project Execution Plan*
- Hanford Waste Treatment Plant Project Integrated Safety Management System Pre-Phase I/II Independent Assessment Final Report, 01/10/03
- 24590-WTP-GPP-SENV-010, Rev. 2, *WTP Environmental Permit Maintenance*
- 24590-WTP-GPG-ENG-028A, Rev. 1, *Dangerous Waste Permit Engineering Documents*
- 24590-WTP-GPP-SENV-009, Rev. 1, *Environmental Permits*
- 24590-WTP-GPP-SENV-016_0, *Identification and Management of Environmental Permits*
- Engineering Training Matrix, Revision 6, January 15, 2003

Interviews Conducted:

- Design Engineer (2)
- Field Engineer (2)
- Area Project Engineer (2)
- Environmental Integration Lead
- Lead Field Engineer
- General Superintendent
- Sub-Contract Administrator
- Resident Engineering Manager
- Engineering Staffing and Training Supervisor
- Project Engineering Manager, LAW
- Project Engineering Manager, Pre Treat
- Project Engineering Manager, HLW
- Construction Coordinator

- Systems Engineering Manager

Observations:

- ISM Control Strategy Meeting for HLW High Feed Preparation (HFP) System
- Field Engineering Lead Meeting
- Construction Engineering Interface Meeting

Part 2 Discussion of Results:

Contractor and DOE procedures require identification, analysis, and categorization of all hazards associated with the site. Contractor ISMS procedures for analysis of hazards reflect accepted rigor and methodology. The resulting hazards are utilized in selection of standards included in the contract as List A/List B.

Contractor procedures require identification, analysis, and categorization of all hazards associated with facilities or activities. Hazards that are considered include nuclear, chemical, industrial or others applicable to the work being considered. Contractor procedures for analysis of hazards reflect accepted rigor and methodology.

DOE procedures and mechanisms are in place and implemented to ensure that BNI's hazard analysis is comprehensive, tailored to risk, and sufficient for selecting standards.

Procedures governing the transition process between design and construction provided adequate assurance that the hazard controls identified in the Authorization Basis (AB) were retained throughout transition. The interface between design and construction personnel was well documented, and interviews indicated that this interface was a critical component of the Bechtel National work planning and execution process. Field engineering and construction procedures require the identification, analysis, and control of hazards associated with construction activities at the site.

Construction personnel were interviewed to evaluate the level of understanding of the design process and the AB interfaces that exist to produce the final design drawings. All personnel interviewed indicated an adequate level of understanding as to the importance of AB controls as they relate to construction activities. Procedures defining the Field Change Notice/Field Change Request process are clearly understood, although another team member identified implementation issues with this process (HAZ II-1). All personnel interviewed were consistent in stating that construction was conducted to the approved drawings and no design changes were implemented without the input and concurrence of the cognizant design engineers.

The work planning and execution process used during construction activities at the WTP project is defined in 24590-WTP-GPP-CON-1201, *Construction Work Packages*. This procedure is supplemented by an implementation manual (24590-WTP-GPG-CON-1203), also titled *Construction Work Packages*. These documents clearly call out requirements for the identification and control of hazards associated with the actual construction of the WTP. All personnel interviewed clearly understood the necessity of procedure compliance in this area.

Conclusion:

Hazards associated with the work are identified, analyzed, and categorized. The criteria for this objective have been met.

Issue(s):

None.

Noteworthy Practices:

None.

Inspectors: <u> /s/ </u> Tom Pestorius <u> /s/ </u> Steve Bertness	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Hazards Identification and Standards Selection	OBJECTIVE: HAZ I-2	DATE: 2/12/03
--	---------------------------	----------------------

OBJECTIVE:

Applicable standards and requirements are identified and agreed upon and are used to develop the appropriate hazard controls. (CE I-4, CE I-9)

Criteria

1. Contractor procedures utilize acceptable methodologies to identify adequate hazard control standards at both the site and corporate level and at the facility level to protect the public, worker, and environment. Controls at the corporate level appear in the contract while those at the facility level are reflected in the authorization documentation.
2. Contractor procedures ensure controls are tailored to the hazards associated with the work or operations to be authorized.
3. Contractor procedures ensure the identified controls, standards, and requirements are agreed upon and approved prior to the commencement of the operations or work being authorized.
4. Contractor procedures utilize accepted and structured methods and processes to identify select, gain approval for, periodically review, and maintain safety standards and requirements.

NOTE: This report is divided into two parts. Part one addresses primarily the design process from the contract requirements through Engineering Design Documentation. Part two considers the interface between Engineering and Construction activities in the field.

PART 1 APPROACH:

Records Review:

- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PSAR-ESH-01-002-04, Rev. 0, *Preliminary Safety Analysis Report to Support Construction Authorization; General Information Vol. 1&2*
- 24590-WTP-PSAR-ESH-01-002-04, Rev. 0, *Preliminary Safety Analysis Report to Support Construction Authorization; HLW Facility Specific Information*
- 24590-WTP-GPP-SANA-002, Rev. 4, *Hazard Analysis, Development of Hazard Control Strategies, and Identification of Standards*
- 24590-WTP-GPG-SANA-001, Rev. 1, *Standards Identification Process Database*
- 24590-WTP-Z0C-50-00001, *Accident Analysis for Aircraft Crash into a RPP-WTP Facility*

- 24590-PTF-Z0C-W14T-00030, *Design Basis Event—Runaway Nitric Acid/Resin Reaction in Cesium Ion Exchange Column*
- 24590-HLW-Z0C-W14T-00013, Rev. B, *Revised Severity Level Calculations for the HLW Facility*
- DOE/ORP Response to Defense Nuclear Facilities Safety Board (DNFSB) Comments in DNFSB Letter dated November 4, 2002
- 24590-WTP-RPT-G-02-002, Rev. 0, *Root Cause Analysis for Deficiencies Identified in Calculations*
- Corrective Action Report Number 24590-WTP-CAR-QA-02-119

Interviews Conducted:

- Environmental and Nuclear Safety Manager
- Radiological, Nuclear and Process Safety Manager
- HLW Area Project Manager
- Commissioning Training Manager
- Field Engineering Manager

Observations:

- ISM Team Meeting
- Process Management Team Meeting
- Engineering Lead Meeting
- Model Review for Lab
- Model Review of LAW Building Space Requirements
- Project Safety Committee Meeting

Part 1 Discussion of Results:

The BNI WTP Project Integrated Safety Management System Description lists the standards and directives from the contract. These include the so-called “000” documents from DOE ORP/OSR that call for a process and present the requirements for establishing a set of radiological, nuclear, and process safety standards and requirements for the RPP Waste Treatment Plant Contractor. The Contractor has prepared procedures that implement these requirements. This is done principally through procedure 24590-WTP-GPP-SANA-002, Rev. 4, *Hazard Analysis, Development of Hazard Control Strategies, and Identification of Standards*. This procedure and others utilize acceptable methodologies to identify adequate hazard control standards at the site level and at the facility level to protect the public, worker, and environment. Controls at the corporate level are in the contract and in the ISM System Description while those at the facility level are reflected in the authorization documentation. The Authorization Basis Documents consist of Safety Requirements Document (SRD), ISM Plan, Radiation Protection Program, Preliminary Safety Analysis Report (PSAR) and the Quality Assurance Manual (QAM).

The contractor procedures that implement the directives in the ISM System Description ensure controls are tailored to the hazards associated with the work or operations to be authorized and ensure the identified controls, standards, and requirements are agreed upon and approved prior to the commencement of the operations or work being authorized. These procedures have established ISM Teams per BNI procedure 24590-WTP-GPP-SANA-002, Rev. 4, *Hazard Analysis, Development of Hazard Control Strategies, and Identification of Standards*. These teams are chartered to conduct the hazard evaluation activity on identified plant systems or plant areas. They include work activity experts, hazard assessment experts, and hazard control experts. The ISM Team includes representatives from the following disciplines, as applicable:

- Safety Analysis
- Emergency Preparedness
- Environmental Engineering
- Human Factors Engineering
- Criticality Safety
- Fire Protection
- Safety Assurance
- Radiological Protection, Health Physics, and/or Radiation and Shielding Engineering
- Process, Quality, and/or Chemical Engineering
- Structural and Mechanical Engineering
- Control and Instrument Engineering
- Electrical Engineering
- Process Operations
- Layout and Plant Design

An ISM Team meeting was attended. The purpose of the meeting was to consider a potential design change in the HLW Melter overflow line. The meeting was attended by all required groups, and it was clear that the documented safety analysis (PSAR) was driving the design. Movement of the overflow line on the melter was the issue and the size of the tank head space and purge air flow were the main topics of discussion.

Another group that is formally chartered in the same BNI Procedure is the Process Management Team (PMT). The PMT is chaired by the Radiological, Nuclear and Process Safety Manager and is responsible for implementing the safety requirements and standards identification process in accordance with DOE Directives. The PMT is constituted in accordance with project implementing documents and includes managers from the following project organizations:

- Environmental and Nuclear Safety
- Applicable Engineering Disciplines
- Commissioning & Training

The PMT oversees the ISM process and provides resources and resolves issues, as necessary. It establishes ISM Teams for the conduct of ISM generally on a plant system or plant area basis. A meeting of the PMT was attended during the ISM Verification. The purpose of the PMT Meeting was to propose an addition to the Standards Requirements Document (SRD) a portion of Section III of the ASME Boiler and Pressure Vessel Code for the purpose of seismic

calculations for pressure vessels. The meeting started promptly, was attended by all required representatives, and made good progress on the issue.

Through review of the PSAR General Section, HLW Section, the DOE Safety Evaluation Report and selected calculation documents, it was confirmed that the contractor procedures utilize accepted and structured methods and processes to identify, select, gain approval for, periodically review, and maintain safety standards and requirements.

Recent deficiencies relating to calculations to support the design process were reviewed. The root cause analysis conducted regarding these calculations deficiencies was reviewed and found to be comprehensive and relevant. The corrective actions to eliminate future calculations deficiencies are documented and nearly complete. Three calculations were reviewed satisfactorily.

A Project Safety Committee Meeting was attended. At the meeting an Authorization Basis Amendment Request proposed for submittal to DOE and a planned change to the ISM Plan (an authorization basis document) were reviewed. The committee was composed of knowledgeable managers who performed a thorough discussion of the items prior to approving the recommended changes.

Additionally, other meetings were attended to observe the integration of the design process among competing interests. An Engineering Lead meeting and Model Design Review meeting for the Laboratory were attended. The meetings were formal, disciplined to an agenda and represented by all required organizations. In both meetings it was clear that safety requirements from the PSAR were driving the design. For example, Fire Protection Engineers were at the Model Review Meeting for the Lab to ensure consideration of Fire Hazards Analysis issues and Life Safety Code (NFPA 101) issues.

Interviews with Managers and Engineers showed an excellent grasp of roles and responsibilities. In addition, attitudes towards safety and ISM in particular is outstanding.

PART 2 APPROACH:

Records Review:

- 24590-WTP-GPP-SANA-002, *Hazard Analysis, Development of Hazard Controls and Identification of Standards*
- 24590-WTP-PL-IS-01-001, *Non-Radiation Worker Safety and Health Plan*
- 24590-WTP-GPG-SENV-001, *Environmental Requirements and Regulatory Guidelines*
- 24590-WTP-PL-MG-01-002, *Configuration Management Plan*
- 24590-WTP-GPP-CON-1201, *Construction Work Packages*
- 24590-WTP-GPP-CON, *Construction Work Packages, Special Instructions*
- 24590-WTP-G63-HR-003, *Employee Qualifications for Assignment*
- 24590-WTP-G63-HR-004, *Career Development and Training*
- 24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document*
- 24590-WTP-GPP-CON-4101, *Construction Subcontract Management*

- 24590-WTP-GPP-SIND-002, *STARRT/JHA Procedure*
- 24590-WTP-PL-ENV-01-005, *WTP Construction Environmental Control Plan*
- 24590-WTP-PL-ESH-02-005, Rev. 1, *Integrated Safety Management System (ISM) Implementation Master Plan*
- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PL-TE-01-012, Rev. 0, *Project Execution Plan*
- 24590-WTP-GPP-SENV-010, Rev. 2, *WTP Environmental Permit Maintenance*
- 24590-WTP-GPG-ENG-028A, Rev. 1, *Dangerous Waste Permit Engineering Documents*
- 24590-WTP-GPP-SENV-009, Rev. 1, *Environmental Permits*
- 24590-WTP-GPP-SENV-016, Rev. 0, *Identification and Management of Environmental Permits*
- *Engineering Training Matrix, Revision 6, January 15, 2003*

Interviews Conducted:

- Design Engineer (2)
- Field Engineer (2)
- Area Project Engineer (2)
- Environmental Integration Lead
- Lead Field Engineer
- General Superintendent
- Subcontract Administrator
- Resident Engineering Manager
- Engineering Staffing and Training Supervisor
- Project Engineering Manager, LAW
- Project Engineering Manager, Pretreatment
- Project Engineering Manager, HLW
- Construction Coordinator
- Systems Engineering Manager

Observations:

- ISM Control Strategy Meeting for HLW High Feed Preparation (HFP) System
- Field Engineering Lead Meeting
- Construction Engineering Interface Meeting

Part 2 Discussion of Results:

The processes used to define the scope of work for specific construction activities at the WTP site are defined in 24590-WTP-GPP-CON-1201, *Construction Work Packages*, which is supplemented by an implementation manual, 24590-WTP-GPG-CON-1203, also entitled *Construction Work Packages*. These documents clearly call-out requirements for the tailoring of standards and requirements specified at the corporate and facility level to the specific hazards associated with activity level construction at the WTP site. All personnel interviewed clearly understood the necessity of procedure compliance in this area.

WTP site construction work package procedures require pre-job briefings to discuss and obtain feedback on the specific hazards and control strategies to be implemented prior to commencement of scheduled work. All affected personnel are required to attend these meetings and the understanding of and agreement with identified hazards is documented prior to the start of work. Industrial Safety and Health SMEs also provide input at these pre-job briefings.

NCR Number 24590-WTP-NCR-CON-02-254 documents a non-compliance regarding receipt of Quality Level 1 (QL-1) Stainless Steel Encast Liners. Two dimensionally different liners were received that failed receipt inspection. Documents state that further inspection and measurement showed that one of the liners met specifications. The NCR was dispositioned use-as-is without documentation regarding the other liner. (HAZ I-2.1)

The contractor conducts and maintains a Constructability Program. The goals of the program are to lower the total installed and operating costs of the project and improve safety. There are 10 assigned Construction Coordinators and a database is maintained to provide a routine give-and-take between engineering and construction on key issues. This is an excellent feedback mechanism and review of the computer database demonstrated detailed problem solving. (HAZ I-2.2)

Conclusion:

Applicable standards and requirements are identified and agreed upon for appropriate hazard controls. The criteria for this objective have been met, with one issue noted.

Issue(s):

HAZ I-2.1: One non-conformance report from the field was found to be dispositioned use-as-is without sufficient documented justification in the record.

Noteworthy Practices:

HAZ I-2.2: The Project Constructability Program is exemplary in tracking issues between engineering and the field.

Inspector: _____ Tom Pestorius	Team Leader: _____ Larry Hinson
Inspector: _____ Steve Bertness	

FUNCTIONAL AREA: Hazards Identification and Standards Selection	OBJECTIVE: HAZ I-3	DATE: 2/12/03
--	---------------------------	----------------------

OBJECTIVE:

Contractor procedures ensure that contractor personnel responsible for analyzing the hazards and developing, reviewing, or implementing the controls, have competence that is commensurate with their responsibilities. BNI roles and responsibilities are clearly defined to ensure appropriate oversight and review of the analysis of hazards and the identification of controls. Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities. (CE I-7, CE I-8, CE I-9)

Criteria

1. Contractor procedures have clearly defined roles and responsibilities for personnel assigned to oversee, review, approve the analysis of hazards, and establish controls associated with facilities and activities.
2. Contractor procedures require that personnel responsible for analyzing hazards and identification of adequate controls have competence that is commensurate with their responsibilities.

APPROACH:

Records Review:

- 24950-WTP-QAM-QA-01-001, Rev 3: *Quality Assurance Manual*
- 24590-WTP-GPP-SANA-002: *Hazard Analysis, Development of Hazard Controls and Identification of Standards*
- 24590-WTP-PL-IS-01-001: *Non-Radiation Worker Safety and Health Plan*
- 24590-WTP-GPG-SENV-001: *Environmental Requirements and Regulatory Guidelines*
- 24590-WTP-PL-MG-01-002: *Configuration Management Plan*
- 24590-WTP-GPP-CON-1201: *Construction Work Packages*
- 24590-WTP-GPP-CON-: *Construction Work Packages, Special Instructions*
- 24590-WTP-G63-HR-003: *Employee Qualifications for Assignment*
- 24590-WTP-G63-HR-004: *Career Development and Training*
- 24590-WTP-SRD-ESH-01-001-02: *Safety Requirements Document*
- 24590-WTP-GPP-CON-4101: *Construction Subcontract Management*
- 24590-WTP-GPP-SIND-002: *STARRT/JHA Procedure*
- 24590-WTP-PL-ENV-01-005: *WTP Construction Environmental Control Plan*
- 24590-WTP-PL-ESH-02-005, Rev. 1: *Integrated Safety Management System (ISM) Implementation Master Plan*

- 24590-WTP-ISMSD-ESH-01-001, Rev. 1: *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PL-TE-01-012, Rev. 0: *Project Execution Plan*
- 24590-WTP-GPP-SENV-010, Rev. 2: *WTP Environmental Permit Maintenance*
- 24590-WTP-GPG-ENG-028A, Rev. 1: *Dangerous Waste Permit Engineering Documents*
- 24590-WTP-GPP-SENV-009, Rev. 1: *Environmental Permits*
- 24590-WTP-GPP-SENV-016, Rev. 0: *Identification and Management of Environmental Permits*
- *Engineering Training Matrix*, Rev. 6, January 15, 2003

Interviews Conducted:

- Radiological, Nuclear and Process Safety Manager
- Environmental and Nuclear Safety Manager
- Design Engineer (2)
- Field Engineer (2)
- Area Project Engineer (2)
- Environmental Integration Lead
- Lead Field Engineer
- General Superintendent
- Subcontract Administrator
- Resident Engineering Manager
- Engineering Staffing and Training Supervisor
- Project Engineering Manager, LAW
- Project Engineering Manager, Pretreatment
- Project Engineering Manager, HLW
- Construction Coordinator
- Systems Engineering Manager

Observations:

- ISM Control Strategy Meeting for HLW High Feed Preparation (HFP) System
- Field Engineering Lead Meeting
- Construction Engineering Interface Meeting

Discussion of Results:

The project Quality Assurance Manual documents the roles and responsibilities of the managers in the project organization. This includes the Environmental and Nuclear Safety Manager who is responsible for overseeing, reviewing, and approving the analysis of hazards, and establishing controls associated with facilities and activities. In addition, the personnel interviewed were cognizant of their individual roles and areas of responsibility.

Bechtel National has established a Human Resource Procurement System for use at the WTP site to ensure personnel hired possess the necessary competence to perform assigned duties. The responsible hiring manager interfaces with the appropriate discipline manager to determine the

necessary level of education and experience for the vacancy. Once the necessary levels of competence have been established at the site level, a human resource package is dispatched to the Bechtel National Corporate office for confirmation and approval. After corporate approval, an individual is selected and hired.

The project has also established procedures for maintaining existing competencies and enhancing the professional certifications, education, and other skills necessary to improve the knowledge base of project personnel. Personnel interviewed consistently had more than 10 years experience at major construction projects in commercial power discipline, and/or oil/petrochemical facilities. The majority of engineers interviewed held Professional Engineer licenses and those who did not had sufficient experience and education to demonstrate competence commensurate with their defined responsibilities.

The training program for personnel evaluating hazards and identifying appropriate controls includes training in the Authorization Basis (AB) and procedures and techniques for developing the documentation for the AB. Recent upgrades have been added to the training program to address deficiencies found with engineering calculations needed to support the AB. These changes were reviewed and are considered detailed and relevant to the root causes of the calculation deficiencies.

During the interviews conducted and meetings attended, project personnel consistently demonstrated a high level of technical competence. All project personnel conducted themselves professionally and were open and candid with the reviewers regarding ISM, technical, and quality issues relating to the WTP project.

Conclusion:

The Contractor requires that personnel responsible for hazard analysis and control are competent and trained. Oversight and review responsibilities are clearly defined for monitoring of hazard analysis and control functions. This objective has been met

Issue(s): None.

Noteworthy Practices: None.

Inspector: <u> /s/ </u> Tom Pectorius	Team Leader: <u> /s/ </u> Larry <u>Hinson</u>
Inspector: <u> /s/ </u> Steve Bertness	

FUNCTIONAL AREA: Hazards Identification and Standards Selection	OBJECTIVE: HAZ I-4	DATE: 2/12/03
--	---------------------------	----------------------

OBJECTIVE:

Within the Environmental Protection/Fire Protection/Chemical Management area, work planning includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the Environmental Protection/Fire Protection/Chemical Management area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE I-4, CE I-5, CE I-6, CE I-7, CE II-4)

Criteria

1. Procedures within the Environmental Protection/Fire Protection/Chemical Management Programs require adequate planning of work items to ensure that hazards are analyzed and controls are identified.
2. Procedures for the Environmental Protection/Fire Protection/Chemical Management Programs contain clear roles and responsibilities. The Environmental Protection/Fire Protection/Chemical Management is effectively integrated with line and support managers to ensure that line managers are responsible for safety.
3. Procedures for Environmental Protection/Fire Protection/Chemical Management require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures for the Environmental Protection/Fire Protection/Chemical Management require personnel who are assigned to have a satisfactory level of competence.
5. Procedures for the Environmental Protection/Fire Protection/Chemical Management require feedback and continuous improvement.

APPROACH:

Records Review:

- 24590-WTP-PSAR-ESH-01-002-04, Rev. 0, *Preliminary Safety Analysis Report to Support Construction Authorization; General Information Vol. 1&2*
- 24590-WTP-PSAR-ESH-01-002-04, Rev. 0, *Preliminary Safety Analysis Report to Support Construction Authorization; HLW Facility Specific Information*
- ORP/OSR-2002-18, *Safety Evaluation Report for Waste Treatment and Immobilization Plant*

(WTP) Construction Authorization

- 24590-WTP-GPP-SANA-002, Rev. 4, *Hazard Analysis, Development of Hazard Control Strategies, and Identification of Standards*
- DOE/RL-96-0004, Rev. 2, *Process for Establishing a Set of Radiological, Nuclear, and Process Safety Standards and Requirements for the RPP Waste Treatment Plant Contractor*
- DOE/RL-96-0003, Rev. 2, *DOE Process for Radiological, Nuclear, and Process Safety Regulation of the RPP Waste Treatment Plant Contractor*
- 24590-WTP-PL-IS-01-001, *Non-Radiation Worker Safety and Health Plan*
- 24590-WTP-GPG-SENV-001, *Environmental Requirements and Regulatory Guidelines*
- 24590-WTP-GPP-CON-1201, *Construction Work Packages*
- 24590-WTP-GPP-CON, *Construction Work Packages, Special Instructions*
- 24590-WTP-G63-HR-003, *Employee Qualifications for Assignment*
- 24590-WTP-G63-HR-004, *Career Development and Training*
- 24590-WTP-SRD-ESH-01-001-02, *Safety Requirements Document*
- 24590-WTP-GPP-CON-4101, *Construction Subcontract Management*
- 24590-WTP-GPP-SIND-002, *STARRT/JHA Procedure*
- 24590-WTP-PL-ENV-01-005, *WTP Construction Environmental Control Plan*
- 24590-WTP-PL-ESH-02-005, Rev. 1, *Integrated Safety Management System (ISM) Implementation Master Plan*
- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PL-TE-01-012, Rev. 0, *Project Execution Plan*
- *Hanford Waste Treatment Plant Project Integrated Safety Management System Pre-Phase I/II Independent Assessment Final Report, 01/10/03*
- 24590-WTP-GPP-SENV-010, Rev. 2, *WTP Environmental Permit Maintenance*
- 24590-WTP-GPG-ENG-028A, Rev. 1, *Dangerous Waste Permit Engineering Documents*
- 24590-WTP-GPP-SENV-009, Rev. 1, *Environmental Permits*
- 24590-WTP-GPP-SENV-016, Rev. 0, *Identification and Management of Environmental Permits*
- *Engineering Training Matrix, Revision 6, January 15, 2003*

Interviews Conducted:

- Radiological, Nuclear and Process Safety Manager
- Environmental and Nuclear Safety Manager
- Design Engineer (2)
- Field Engineer (2)
- Area Project Engineer (2)
- Environmental Integration Lead
- Lead Field Engineer
- General Superintendent
- Subcontract Administrator
- Resident Engineering Manager
- Engineering Staffing and Training Supervisor
- Project Engineering Manager, LAW
- Project Engineering Manager, Pretreatment

- Project Engineering Manager, HLW
- Construction Coordinator
- Systems Engineering Manager

Observations:

- ISM Control Strategy Meeting for HLW High Feed Preparation (HFP) System
- Field Engineering Lead Meeting
- Construction Engineering Interface Meeting

Discussion of Results:

The contractor's Environmental and Nuclear Safety organization includes responsibility for analyzing and determining hazard controls for the AB documents for environmental, nuclear, radiological, chemical (process safety) and fire safety areas. The Preliminary Safety Analysis Report (PSAR) for the HLW Facility was reviewed and found to address chemical management and fire protection. The environmental analysis and permitting process is also governed by procedure and managed in a disciplined way within the same organization. Environmental permitting for the project with the State of Washington is proceeding well. It was noted that the process includes a public comment period that has the potential to place delays in the project but the State of Washington is managing the process well. Cooperation between the State and the DOE/Contractor was reported as excellent.

Procedures governing the transition process between design and construction provide adequate assurances that environmental protection considerations and chemical management program requirements and associated hazards identified during the design phase of the project are retained throughout transition. The interface between design and construction personnel was well documented and interviews indicated that this interface was a critical component of the Bechtel National work planning and execution process. Field engineering and construction procedures require the identification, analysis, and control of chemical management hazards associated with construction activities at the site. Environmental permitting and the identification of environmental requirements are also proceduralized and incorporated into the transition process.

Construction personnel were interviewed to evaluate the level of understanding of the design process and the interfaces with environmental protection and chemical management that occurred to produce the final design drawings. All personnel interviewed indicated an adequate level of understanding as to the importance of these interfaces and the resulting controls as they relate to construction activities. Procedures defining the Field Change Notice/Field Change Request process are clearly understood, although another team member identified implementation issues with this process (HAZ II-1). All personnel interviewed were consistent in stating that construction is conducted to the approved drawings and no design changes were implemented without the input and concurrence of the cognizant design engineers.

The work planning and execution process used during construction activities at the WTP project is defined in 24590-WTP-GPP-CON-1201, *Construction Work Packages*, which is supplemented by an implementation manual, 24590-WTP-GPG-CON-1203, also entitled *Construction Work Packages*. These documents clearly call out requirements for the identification and control of chemical hazards and environmental requirements associated with the actual construction of the WTP. All personnel interviewed clearly understood the necessity of procedure compliance in this area.

Procedural reviews by the Team confirmed that roles and responsibilities associated with Environmental Protection and Chemical Management are clearly defined. Interviews indicated that personnel were aware of these responsibilities and their applicability to individual job assignments. Environmental protection specialists were matrixed to each area project and to the corresponding design engineering group supporting that area.

Personnel within the Environmental Protection and Chemical Management programs are hired using the same process discussed in detail in CRAD HAZ I-3. Their training and indoctrination includes necessary exposure to project requirements and procedures.

The design process used for development of the AB documents and standards selection process include feedback and continuous improvement mechanisms. Continuous improvement and feedback in Environmental Protection and Chemical Management are required as an integrated portion of the work planning and execution systems utilized by the design and construction divisions of BNI. Interviews conducted indicated that personnel understood and valued the feedback and improvement processes contained in site procedures.

Note: Additional evaluation/comments regarding Fire Protection can be found in CRAD IS/IH II-1.

Conclusion:

Environmental Protection/Fire Protection/Chemical Management are effectively included and integrated into the hazard identification and design process. Effective feedback and control mechanisms are in place for these processes. This criteria for this objective have been met.

Issue(s):

None.

Noteworthy Practices:

None.

Inspector: <u> /s/ </u> Tom Pestorius	Team Leader: <u> /s/ </u> Larry Hinson
Inspector: <u> /s/ </u> Steve Bertness	

FUNCTIONAL AREA: Management	OBJECTIVE: MAN I-1	DATE: 2/12/03
--	---------------------------	----------------------

OBJECTIVE:

The ISMS Description is consistent and responsive to DOE Policies 450.4, 450.5, and 450.6; the DEAR; and the direction to the contractor from the Approval Authority. The contractor policies and procedures ensure that the ISMS Description is maintained, implemented, and that implementation mechanisms result in integrated safety management. (CE I-1)

Criteria

1. The ISMS Description is consistent and responsive to DOE Policies 450.4, 450.5, and 450.6; the DEAR; and the direction to the contractor from the Approval Authority.
2. The contractor has mechanisms in place to direct, monitor, and verify the integrated implementation of the ISMS as described in the ISMS Description. Implementation and integration expectations and mechanisms are evident throughout all corporate/site organizational functions.
3. The contractor has assigned responsibilities and established mechanisms to ensure that the ISMS Description is maintained current and that the annual update information is prepared and submitted.
4. The contractor has established a process that establishes, documents, and implements safety performance objectives, performance measures, and commitments. The ISMS describes how system effectiveness will be measured. The ISMS also describes how performance data is routinely coupled and distributed for contractor management's use.

APPROACH:

Records Review:

- 24590-WTP-GPP-GAB-00103, *Trend Program*
- 24590-WTP-3DP-G04B-00005, *Configuration Management*
- 24590-WTP-GPP-SREG-002, *Authorization Basis Maintenance*
- 24590-WTP-3DP-G01B-00003, *Lessons Learned System*
- 24590-WTP-G63-MGT-001, *Project Integrated Safety Management System Policy*
- 24590-WTP-G63-MGT-002, *WTP Environmental Policy*
- 24590-WTP-G63-SIND-001, *River Protection Project - Waste Treatment Plant Health & Safety Policy*
- 24590-WTP-GPG-MGT-001, *Safety/Quality Council*
- 24590-WTP-GPG-QA-204, *Root Cause Analysis and Corrective Action Development Guide*
- 24590-WTP-GPG-SANA-002, *Integrated Safety Management*

- 24590-WTP-GPP-CTRG-002, *Training*
- 24590-WTP-GPP-CTRG-004, *Training Program Description For WTP Instructors*
- 24590-WTP-GPP-GAB-00111, *Critical Items Action Reporting*
- 24590-WTP-GPP-HR-005, *Employee Concerns Program*
- 24590-WTP-GPP-HR-017, *WTP Organization Chart And Staff Roster*
- 24590-WTP-GPP-MGT-002, *Management Assessment*
- 24590-WTP-GPP-MGT-006, *Management Oversight*
- 24590-WTP-GPP-QA-201, *Corrective Action*
- 24590-WTP-GPP-QA-205, *Root Cause Analysis*
- 24590-WTP-GPP-QA-501B, *Independent Assessment (Audit)*
- 24590-WTP-GPP-SIND-005, *Lessons Learned*
- 24590-WTP-GPP-SIND-014, *Hazard Communication*
- 24590-WTP-GPP-SIND-023, *Reporting Occupational Injuries and Illnesses*
- 24590-WTP-GPP-SIND-040, *Environment, Safety And Health Reporting In Accordance With DOE ORDER 231.1*
- 24590-WTP-GPP-SREG-001, *Project Safety Committee*
- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PL-ESH-02-005, Rev. 2, *ISMS Master Implementation Plan and Roll-out Schedule*
- 24590-WTP-PL-MG-01-001, *Interface Management Plan*
- Records for the Project Safety Committee
- 02-OSR-0351, *Memorandum of Understanding Among Office of Safety Regulation, Washington State Department of Ecology, and Washington State Department of Health*
- Bechtel Environmental, Safety & Health Program Assessment, Hanford Waste Treatment Plant, 9/26/02
- Training Syllabus for Safety Leadership Course
- 24590-WTP-QAM-QA-01-001, *Quality Assurance Manual*
- 24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*
- 24590-WTP-PL-IS-01-001, *Nonradiological Worker Safety and Health Plan*
- 24590-WTP-G63-HR-003, *Employee Qualifications for Assignment*
- 24590-WTP-RPP-ESH-01-001, *Radiation Protection Program for Design and Construction*
- 24590-WTP-GPP-SRAD-002, *Application of ALARA in the Design Process*
- 24590-WTP-WTP-3DP-G03B-00001, *Design Process*
- 24590-WTP-GPP-SANA-002, *Hazard Analysis, Development of Hazard Control Strategies and Identification of Standards*
- 24590-WTP-GPP-MGT-007, *WTP Document Administration*
- 24590-WTP-GPP-SPEC-001, *WTP Project Safety Performance Objectives, Measures, and Commitments*
- 24590-WTP-MAR-ESH-02-013, *Phase I Integrated Safety Management System (ISMS) Management Assessment Report*
- Hanford Waste Treatment Plant Project Integrated Safety Management System Pre-Phase I/II Independent Assessment
- WTP Project Safety Performance 2002
- Level 4 schedule for EN&S Safety Analysis Support to the Lab
- WTP Contract No DE-AC27-01RV14136

- DOE/RL-96-0003, Rev. 2, *Process for RPP-WTP Safety Regulation*
- 02-OSR-0517, Rev. 0, *Construction Authorization Agreement*
- 24590-WTP-PL-TE-01-012 Rev. 0, *Project Execution Plan*

Interviews Conducted:

- Project Director
- Project Manager
- Project Safety Assurance Manager
- Project Engineering Manager
- Environmental and Nuclear Safety Manager
- Quality Assurance Manager
- Construction Manager
- Site Construction Manager
- Deputy Engineering Manager
- Area Project Managers (5)
- Human Resources Manager
- Field Engineering Manager
- Project Training Manager
- Radiological Nuclear and Process Safety Manager
- Employee Concerns Coordinator
- ISM and Special Projects Manager
- Project Document Control Manager
- Engineering Processes Procedures and Personnel Manager
- ISMS Organization Points-of-Contact (POCs) (3)
- Senior Safety Engineer
- Safety & Licensing Engineer
- Quality Assurance Programs Manager
- Management Assessment Coordinator
- Team Lead, ESQ Safety & Standards Team

Observations:

- Project Plan of the Day (POD) meeting
- Project Safety Committee Meeting
- Area Project Manager Coordination Meeting
- Reaffirmation to Quality meeting
- High Level Waste (HLW) Weekly Team meeting
- Critique of Error Found in Revision B Source Term Calculation
- Area Trend Meeting
- Project Trend meeting
- Safety/Quality Council Meeting
- Safety Education Through Observation (SETO) Meeting
- ISM Work Identification Meeting for Melter Off-Gas
- ISM III-Low Activity Waste (LAW) Hazard Control Selection for Mis-Transfer Event from Pretreatment

Discussion of Results:

The ISMS Description is consistent and responsive to DOE Policies 450.4, 450.5, and 450.6; the DEAR; and the direction to the contractor from the Approval Authority.

The *WTP Project Integrated Safety Management Description* (ISMSD), 24590-WTP-ISMSD-ESH-01-001 Rev. 1, is consistent with DOE policies and contract requirements found in Section I of the WTP contract. The Manager, ORP, is responsible for approving the ISMSD for the project.

The contractor has mechanisms in place to direct, monitor, and verify the integrated implementation of the ISMS as described in the ISMS Description. Implementation and integration expectations and mechanisms are evident throughout all corporate/site organizational functions.

The contractor utilized the ISMS Implementation Master Plan to provide the overall execution support for ISMS implementation, verification and maintenance. The latest Implementation Master Plan is consistent with the ISMSD. A roll-out schedule is being used to manage the overall maintenance process. A review of the schedule and verification activities found the majority of the actions are complete and the remaining items are not expected to significantly impact Phase I implementation.

The implementation mechanisms are generally spelled out in the ISMD in good detail and are traceable and evident in project management systems. Interviews confirmed personnel were knowledgeable on the implementing documents and processes. Two exceptions were noted. There was no implementing mechanism to ensure industrial health and safety reviews, conducted by the Safety Assurance organization, were part of the design process. The lack of a formalized process was noted in the contractor's Gap Analysis and corrective action to fix this omission is ongoing. The Safety Assurance organization was recently relocated from another group and a limited number of personnel are available to support non-site project activities. Reviews are being conducted by safety professionals; however, their involvement is driven by individual designers determining they need to be involved in the review, and an informal checklist is used by the safety engineers to guide the review. Also, the *Integrated Safety Management* (ISM) (25490-WTP-GPG-SANA-002) procedure specifies that teams can call on the safety specialist if they identify significant industrial safety hazards. This role is in contrast to other safety functions such as radiological, nuclear and process safety which have clear paths identified in the ISMD, well-defined implementing procedures, and well-defined roles and responsibilities. The lack of a formalized process in this area does not invalidate the ISMS description or program. Significant Industrial Safety/Industrial Hygiene issues are formalized in the contractor's ISM review process.

Reviews are being conducted by Safety Assurance, and the area project managers did not indicate a problem with these areas and felt others on the teams helped to identify other less significant Industrial Safety/Industrial Hygiene issues. (MAN I-1.1)

Multiple assessments, including a Phase I Gap Analysis and an Independent Phase I and II Assessment, were conducted. The reviews were thorough and identified improvements in the program. Corrective actions from these assessments were entered in a tracking system. A review of selected actions found one action impacting the ISMSD to have been incorrectly closed. A corrective action from the Independent Assessment regarding the need to describe the Safety/Quality Council and its role in safety performance monitoring and ISMS maintenance in the system description still needs to be addressed. The ISMSD should include a description of the Safety/Quality Council and the important role the Council fulfills in the feedback and improvement function as well as in support of the line management responsibility for safety principle. (MAN I-1.1)

The contractor has assigned responsibilities and established mechanisms to ensure that the ISMS Description is maintained current and that the annual update information is prepared and submitted.

The Environmental and Nuclear Safety (E&NS) Manager is responsible for an annual report being prepared and submitted to DOE. Chapter 7 of the ISMSD describes the contractor's ISMSD update process, but does not specify who is responsible for the update process. These details are addressed in *WTP-Project Safety Performance Objectives, Measures and Commitments* (24590-WTP-GPP-SPEC-0001, Rev. 1). In preparing the annual report, the ISMSD is reviewed to determine whether an update is required. The first update is carried on the Master Implementation Plan roll out schedule. The process described in the procedure uses a collection of results from the feedback mechanisms and review of performance against the established metrics to identify needed updates.

For development of new documents, the procedure for *WTP Documentation Administration* (24590-WTP-GPP-MGT-007) requires the EN&S Manager to review the procedures for compliance with the Authorization Basis and implementation of ISMS. In executing this procedure additional changes for system description will be identified. This will keep the link to the implementing documents contained in the ISMSD consistent and flag changes that may need additional review so the system is not impacted.

The contractor has established a process that establishes, documents, and implements safety performance objectives, performance measures, and commitments. The ISMS describes how system effectiveness will be measured. The ISMS also describes how performance data is routinely coupled and distributed for contractor management's use.

The contractor recently issued *WTP-Project Safety Performance Objectives, Measures and Commitments* (24590-WTP-GPP-SPEC-0001, Rev. 1) as the process for safety performance objectives and measures development and distribution. This formalizes reporting that has been going on within the project. The reports are distributed quarterly and annually to Project Management with copies to the Project Safety Committee, ISMS Senior Management Champion,

E&NS Manager, and the project ISMS Lead. The ISMSD describes the system used to measure effectiveness; however, these have not been coordinated with DOE (discussed in more detail MAN I-3).

BNI uses a multiplicity of indicators concerning statistics of injury from accidents to first aid cases. Of particular note was the breakdown of statistics relative to foremen and general foremen. The breakdown of statistics relative to the parts of the body that was injured allowed BNI to proscribe protective gear that prevented additional injuries.

Safety commitments can be tracked in multiple systems depending on their impact on quality. There is a documented process for tracking safety commitments that are adverse to quality and from external entities defined in quality procedures. However, commitments not assigned to this category are tracked in less formal systems. The management assessment process will also serve as a feeder to the informal system if items are identified that do not meet the level of a quality issue. As constructed, the current Recommendation and Issue Tracking System (RITS) will not serve as a master tracking system for safety issues, which would be particularly useful during commissioning activities. RITS lacks the controls associated with approval, documentation, prioritization and closure reviews that are contained in the project's documented tracking systems. Because the major issues are managed in the formalized systems (Corrective Action Reporting System (CAR)) referenced in the ISMSD as the primary tracking mechanism for safety commitments, this criteria can still be met. (The CAR system is discussed in greater detail in the MAN I-3 Form 1.) (MAN I-1.2)

Conclusion:

The ISMS Description Document is consistent and responsive to DOE policies and the direction provided to the contractor from the Approval Authority. The ISMS Description provides a link to the contractor's implementing policies and procedures through a series of matrices. The procedures ensure that the ISMS Description is maintained, implemented, and that implementing mechanisms result in integrated safety management. Change processes exist to aid in maintaining current baselines and processes. The criteria supporting this objective have been met, with two issues noted. The Verification Team recommends that the Manager, ORP approve the ISMS Description and ensure that the changes necessary to correct identified deficiencies be included in the next ISMS Description update.

Issue(s):

MAN I-1.1: The ISMSD does not describe: (1) the implementing mechanism for Industrial Health and Safety reviews by Safety Assurance; or (2) the Safety/Quality Council mechanism.

MAN I-1.2: All safety commitments are not consistently tracked in a proceduralized issues tracking system. One of the current systems (RITS) does not have the features needed for an effective issues management system able to support project activities, including commissioning.

Noteworthy Practices:

None.

Inspectors: <u> /s/ </u> Michelle Durham <u> /s/ </u> Will Ortiz	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Management	OBJECTIVE: MAN I-2	DATE: 2/12/03
--	---------------------------	----------------------

OBJECTIVE:

Contractor roles and responsibilities are clearly defined to ensure satisfactory safety, accountability and authority. Line management is responsible for safety. Competence is commensurate with responsibilities. (CE I-7, CE I-8)

Criteria

1. Contractor ISMS defines clear roles and responsibilities of all personnel to ensure that safety is maintained at all levels. ISMS procedures and implementing mechanisms specify that line management is responsible for safety.
2. Contractor procedures identify line management as responsible for ensuring that the implementation of hazard controls is adequate to ensure that work is planned and approved and conducted safely. Procedures require that line managers are responsible for the verification of adequate implementation of controls to mitigate hazards prior to authorizing work to commence.
3. Contractor procedures identify line management as responsible for ensuring that hazard controls are established.
4. Contractor procedures ensure that personnel who supervise work have competence commensurate with the responsibilities.
5. Contractor and DOE procedures define the processes for the development, approval, and maintenance of documentation addressing the establishment of authorization protocols and authorization agreements.

APPROACH:

Records Review:

- 24590-WTP-GPP-GAB-00103, *Trend Program*
- 24590-WTP-3DP-G04B-00005, *Configuration Management*
- 24590-WTP-GPP-SREG-002, *Authorization Basis Maintenance*
- 24590-WTP-3DP-G01B-00003, *Lessons Learned System*
- 24590-WTP-G63-MGT-001, *Project Integrated Safety Management System Policy*
- 24590-WTP-G63-MGT-002, *WTP Environmental Policy*
- 24590-WTP-G63-SIND-001, *River Protection Project - Waste Treatment Plant Health & Safety Policy*
- 24590-WTP-GPG-MGT-001, *Safety/Quality Council*

- 24590-WTP-GPG-QA-204, *Root Cause Analysis and Corrective Action Development Guide*
- 24590-WTP-GPG-SANA-002, *Integrated Safety Management*
- 24590-WTP-GPP-CTRG-002, *Training*
- 24590-WTP-GPP-CTRG-004, *Training Program Description For WTP Instructors*
- 24590-WTP-GPP-GAB-00111, *Critical Items Action Reporting*
- 24590-WTP-GPP-HR-005, *Employee Concerns Program*
- 24590-WTP-GPP-HR-017, *WTP Organization Chart And Staff Roster*
- 24590-WTP-GPP-MGT-002, *Management Assessment*
- 24590-WTP-GPP-MGT-006, *Management Oversight*
- 24590-WTP-GPP-QA-201, *Corrective Action*
- 24590-WTP-GPP-QA-205, *Root Cause Analysis*
- 24590-WTP-GPP-QA-501B, *Independent Assessment (Audit)*
- 24590-WTP-GPP-SIND-005, *Lessons Learned*
- 24590-WTP-GPP-SIND-014, *Hazard Communication*
- 24590-WTP-GPP-SIND-023, *Reporting Occupational Injuries and Illnesses*
- 24590-WTP-GPP-SIND-040, *Environment, Safety And Health Reporting In Accordance With DOE ORDER 231.1*
- 24590-WTP-GPP-SREG-001, *Project Safety Committee*
- 24590-WTP-ISMSD-ESH-01-001 Rev. 1, *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PL-ESH-02-005, Rev. 2, *ISMS Master Implementation Plan and Roll-out Schedule*
- 24590-WTP-PL-MG-01-001, *Interface Management Plan*
- Records for the Project Safety Committee
- 02-OSR-0351, *Memorandum of Understanding Among Office of Safety Regulation, Washington State Department of Ecology, and Washington State Department of Health*
- Bechtel Environmental, Safety & Health Program Assessment, Hanford Waste Treatment Plant, 9/26/02
- Training Syllabus for Safety Leadership Course
- 24590-WTP-QAM-QA-01-001, *Quality Assurance Manual*
- 24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*
- 24590-WTP-PL-IS-01-001, *Nonradiological Worker Safety and Health Plan*
- 24590-WTP-G63-HR-003, *Employee Qualifications for Assignment*
- 24590-WTP-RPP-ESH-01-001, *Radiation Protection Program for Design and Construction*
- 24590-WTP-GPP-SRAD-002, *Application of ALARA in the Design Process*
- 24590-WTP-WTP-3DP-G03B-00001, *Design Process*
- 24590-WTP-GPP-SANA-002, *Hazard Analysis, Development of Hazard Control Strategies and Identification of Standards*
- 24590-WTP-GPP-MGT-007, *WTP Document Administration*
- 24590-WTP-GPP-SPEC-001, *WTP Project Safety Performance Objectives, Measures, and Commitments*
- 24590-WTP-MAR-ESH-02-013, *Phase I Integrated Safety Management System (ISMS) Management Assessment Report*
- Hanford Waste Treatment Plant Project Integrated Safety Management System Pre-Phase I/II Independent Assessment
- WTP Project Safety Performance 2002

- Level 4 schedule for Environmental & Nuclear Safety (EN&S) Safety Analysis Support to the Lab
- WTP Contract No DE-AC27-01RV14136
- DOE/RL-96-0003, Rev. 2, *Process for RPP-WTP Safety Regulation*
- 02-OSR-0517, rev. 0, *Construction Authorization Agreement*
- 24590-WTP-PL-TE-01-012, Rev. 0, *Project Execution Plan*

Interviews Conducted:

- Project Director
- Project Manager
- Project Safety Assurance Manager
- Project Engineering Manager
- Environmental and Nuclear Safety Manager
- Quality Assurance Manager
- Construction Manager
- Site Construction Manager
- Deputy Engineering Manager
- Area Project Managers (5)
- Human Resources Manager
- Field Engineering Manager
- Project Training Manager
- Radiological Nuclear and Process Safety Manager
- Employee Concerns Coordinator
- ISM and Special Projects Manager
- Project Document Control Manager
- Engineering Processes Procedures and Personnel Manager
- ISMS Organization Points-of-Contact (POC) (3)
- Senior Safety Engineer
- Safety & Licensing Engineer
- Quality Assurance Programs Manager
- Management Assessment Coordinator
- Team Lead, ESQ Safety & Standards Team

Observations:

- Project Plan of the Day (POD) meeting
- Project Safety Committee Meeting
- Area Project Manager Coordination Meeting
- Reaffirmation to Quality meeting
- High Level Waste (HLW) Weekly Team meeting
- Critique of Error Found in Revision B source Term Calculation
- Area Trend meeting
- Project Trend meeting
- Safety/Quality Council Meeting
- Safety Education Through Observations (SETO) Meeting

- ISM Work Identification Meeting for Melter Off-Gas
- ISM III- Low Activity Waste (LAW) Hazard Control Selection for Mis-Transfer Event from Pretreatment

Discussion of Results:

Contractor ISMS defines clear roles and responsibilities of all personnel to ensure that safety is maintained at all levels. ISMS procedures and implementing mechanisms specify that line management is responsible for safety.

The contractor's Integrated Safety Management System Description (ISMSD) (24590-WTP-ISMSD-ESH-01-001 Rev. 1) and Integrated Safety Management Plan (24590-WTP-ISMP-ESH-01-001) identify that line management is responsible for safety. These responsibilities are then flowed down into the procedures for the specific areas of the project. Personnel interviewed demonstrated an understanding of this concept. The roles and responsibilities are identified in the Quality Assurance Manual (QAM) and in the individual implementing procedures for each of the functional areas. In the area of Safety Assurance, the QAM identifies clear roles and responsibilities, but all of the implementing mechanisms have not been developed. Further, the number of personnel assigned to support project activities outside of construction is very limited. As the project progresses, this group may have difficulty supporting the functions it has been assigned (this may be more evident in the Phase II review).

The Employee Concerns Program is an active program, indicating the program is known and used by the employees. The Employee Concerns coordinator was very knowledgeable in the performance of the roles and responsibilities of the office. She was very proactive in the execution of her responsibilities as the coordinator.

Contractor procedures identify line management as responsible for ensuring that the implementation of hazard controls is adequate to ensure that work is planned and approved and conducted safely. Procedures require that line managers are responsible for the verification of adequate implementation of controls to mitigate hazards prior to authorizing work to commence.

At this phase of the project the primary inputs to the planning for hazard controls are from the ISM teams and the engineering design teams. The engineering organization has primary responsibility for ensuring the hazards have been identified and controls are selected for implementation. Engineering is assisted by multidisciplinary groups including operations and other functional areas. The selected controls are implemented in the designs, which are approved by the engineering manager before implementation. Further, the engineers will identify all the applicable safety standards from the contract Safety Requirements Document (SRD). Reviews of the procedures for the design process, ISM and application of ALARA in the design process are examples where line engineering managers are responsible for ensuring that specific controls have been implemented before the design is released to construction.

As a result of recent issues in executing and verifying the adequacy of work activities, the Project Director and Operations Manager met with senior project managers to convey their

commitment to performing quality work. Each manager was requested to sign a reaffirmation to perform quality work and was asked to discuss the issue with their employees and obtain each of their commitments. This is an example where line management re-emphasized the expectations of the project so that impacts to safety from quality issues are minimized.

Contractor procedures identify line management as responsible for ensuring that hazard controls are established.

Contractor procedures, primarily in the Engineering and Construction areas, assign responsibilities to line management for ensuring that hazard controls for nuclear, process, radiological and industrial safety are established. These support establishment of a technical baseline from which changes are evaluated and tracked. These processes also ensure environmental permits for the applicable stage of the project are in place. Area project managers ensure all authorizations for implementation methods are in place. As the project progresses, existing procedures for configuration management and authorization basis changes require the appropriate reviews before being implemented to ensure controls are not changed without review.

The Construction Manager is relatively new to the project, having been in this position for approximately 1 month. He is responsible for all construction activities and is ultimately responsible for safety at the construction site. He spends ~35 % of his time at the site and relies upon the Site Manager to safely execute site work. He keeps himself apprised of safety performance through reports at staff meetings and weekly walk downs of the construction site.

Contractor procedures ensure that personnel who supervise work have competence commensurate with the responsibilities.

Contractor procedures in the human resources and training areas ensure personnel are competent for their positions. Position descriptions are developed and individuals are hired to those standards including an element for safety. Verifications are conducted of experience and education to confirm personnel have the stated qualifications. Supervisors also attend a 3-day supervisory class. As a feedback for continued competence, employee performance appraisals are conducted and include specific elements for safety. Interviews indicate that personnel are appropriately assigned based on their responsibilities. There is also a good cross section of people from other sites.

Interviews with senior project managers clearly demonstrated the strong involvement in safety aspects of BNI's management system. Additionally, their background demonstrated their competence to fully understand the safety aspects of their work and responsibility. They ensure safety performance by monitoring safety records and trends, by reports from their direct reports, and by frequent inspections at the construction site. BNI demonstrates a high commitment to safety by including safety performance as a significant part of each supervisor's performance appraisal.

Contractor and DOE procedures define the processes for the development, approval, and maintenance of documentation addressing the establishment of authorization protocols and

authorization agreements.

There are well developed procedures and management directives that define the process for developing and approving authorization agreements. Since the project is not in full operation, a traditional authorization agreement does not exist. There is a phased approach to construction authorizations contained in the contract which addresses the current construction status. The contract specifies the documents the contractor must submit for each phase of authorization. Upon submittal to DOE, the Office of Safety Regulation (OSR) will review the documents utilizing management directives. After a proceduralized comment resolution process DOE will issue a Safety Evaluation Report for applicable documents. When DOE has completed the Safety Evaluation Reports and a confirmatory readiness verification, the Manager, ORP will issue a letter to the contractor transmitting the agreed upon authorization agreement. Contractor changes to the approved authorization basis are governed by a procedure for *Authorization Basis Maintenance* (24590-WTP-GPP-SREG-002). This procedure controls reviews for impacts to authorization basis documents and determining when the change will need DOE approval. Interviews with contractor and DOE personnel confirmed a thorough understanding of this process.

Conclusion:

Contractor roles and responsibilities are clearly defined to ensure satisfactory safety, accountability and authority in manuals and procedures. Contractor policies and implementing mechanisms indicate line management responsibility for safety. Procedures and interviews confirmed that competence is commensurate with responsibilities in assigned areas. The criteria supporting this objective have been met.

Issue(s):

None.

Noteworthy Practices:

None.

Inspectors: <u> /s/ </u> Michelle Durham <u> /s/ </u> Will Ortiz	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Management	OBJECTIVE: MAN I-3	DATE: 2/12/03
--	---------------------------	----------------------

OBJECTIVE:

Feedback information on the effectiveness of the ISMS is gathered, opportunities for improvement are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur. (CE I-6, CE I-7, CE I-8)

Criteria

1. Contractor procedures describe clear roles and responsibilities to provide feedback and continuous improvement including line management responsibility for safety.
2. Contractor procedures ensure that competence is commensurate with the responsibilities to provide feedback and continuous improvement.
3. Contractor procedures ensure that priorities are balanced to ensure feedback is provided and continuous improvement results.
4. Contractor procedures require line and independent oversight or assessment activities at all levels. Oversight and assessment activities verify that work is performed within agreed upon controls.
5. Contractor procedures ensure oversight or assessment results are managed to ensure lessons are learned and applied; that issues are identified and managed to resolution; that fundamental causes are determined and effective corrective action plans are developed and implemented.
6. Contractor procedures ensure that performance measures or indicators and performance objectives are developed in coordination with DOE as required. Contractor procedures require effective management and use of performance measures and objectives to ascertain the status of the ISMS.
7. Contractor procedures provide for regulatory compliance and enforcement as required by rules, laws, and permits such as PAAA, NEPA, RCRA, CERCLA, etc.

APPROACH:

Records Review:

- 24590-WTP-3DP-G04B-00005, *Configuration Management*
- 24590-WTP-GPP-GAB-00103, *Trend Program*
- 24590-WTP-GPP-SREG-002, *Authorization Basis Maintenance*
- 24590-WTP-3DP-G01B-00003, *Lessons Learned System*
- 24590-WTP-G63-MGT-001, *Project Integrated Safety Management System Policy*
- 24590-WTP-G63-MGT-002, *WTP Environmental Policy*
- 24590-WTP-G63-SIND-001, *River Protection Project - Waste Treatment Plant Health & Safety Policy*
- 24590-WTP-GPG-MGT-001, *Safety/Quality Council*
- 24590-WTP-GPG-QA-204, *Root Cause Analysis and Corrective Action Development Guide*
- 24590-WTP-GPG-SANA-002, *Integrated Safety Management*
- 24590-WTP-GPP-CTRG-002, *Training*
- 24590-WTP-GPP-CTRG-004, *Training Program Description For WTP Instructors*
- 24590-WTP-GPP-GAB-00111, *Critical Items Action Reporting*
- 24590-WTP-GPP-HR-005, *Employee Concerns Program*
- 24590-WTP-GPP-HR-017, *WTP Organization Chart And Staff Roster*
- 24590-WTP-GPP-MGT-002, *Management Assessment*
- 24590-WTP-GPP-MGT-006, *Management Oversight*
- 24590-WTP-GPP-QA-201, *Corrective Action*
- 24590-WTP-GPP-QA-205, *Root Cause Analysis*
- 24590-WTP-GPP-QA-501B, *Independent Assessment (Audit)*
- 24590-WTP-GPP-SIND-005, *Lessons Learned*
- 24590-WTP-GPP-SIND-014, *Hazard Communication*
- 24590-WTP-GPP-SIND-023, *Reporting Occupational Injuries and Illnesses*
- 24590-WTP-GPP-SIND-040, *Environment, Safety And Health Reporting In Accordance With DOE ORDER 231.1*
- 24590-WTP-GPP-SREG-001, *Project Safety Committee*
- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, *WTP Project Integrated Safety Management System Description*
- 24590-WTP-PL-ESH-02-005, Rev. 2, *ISMS Master Implementation Plan and Roll-out Schedule*
- 24590-WTP-PL-MG-01-001, *Interface Management Plan*
- *Records for the Project Safety Committee*
- 02-OSR-0351, *Memorandum of Understanding Among Office of Safety Regulation, Washington State Department of Ecology, and Washington State Department of Health*
- *Bechtel Environmental, Safety & Health Program Assessment, Hanford Waste Treatment Plant, 9/26/02*
- *Training Syllabus for Safety Leadership Course*
- 24590-WTP-QAM-QA-01-001, *Quality Assurance Manual*
- 24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*
- 24590-WTP-PL-IS-01-001, *Nonradiological Worker Safety and Health Plan*

- 24590-WTP-G63-HR-003, Employee Qualifications for Assignment
- 24590-WTP-RPP-ESH-01-001, Radiation Protection Program for Design and Construction
- 24590-WTP-GPP-SRAD-002, Application of ALARA in the Design Process
- 24590-WTP-WTP-3DP-G03B-00001, Design Process
- 24590-WTP-GPP-SANA-002, Hazard Analysis, Development of Hazard Control Strategies and Identification of Standards
- 24590-WTP-GPP-MGT-007, WTP Document Administration
- 24590-WTP-GPP-SPEC-001, WTP Project Safety Performance Objectives, Measures, and Commitments
- 24590-WTP-MAR-ESH-02-013, Phase I Integrated Safety Management System (ISMS) Management Assessment Report
- Hanford Waste Treatment Plant Project Integrated Safety Management System Pre-Phase I/II Independent Assessment
- WTP Project Safety Performance 2002
- Level 4 schedule for EN&S Safety Analysis Support to the Lab
- WTP Contract No DE-AC27-01RV14136
- DOE/RL-96-0003, Rev. 2 Process for RPP-WTP Safety Regulation
- 02-OSR-0517, Rev. 0, Construction Authorization Agreement
- 24590-WTP-PL-TE-01-012, Rev. 0, Project Execution Plan

Interviews Conducted:

- Project Director
- Project Manager
- Project Safety Assurance Manager
- Project Engineering Manager
- Environmental and Nuclear Safety Manager
- Quality Assurance Manager
- Construction Manager
- Site Construction Manager
- Deputy Engineering Manager
- Area Project Managers (5)
- Human Resources Manager
- Field Engineering Manager
- Project Training Manager
- Radiological Nuclear and Process Safety Manager
- Employee Concerns Coordinator
- ISM and Special Projects Manager
- Project Document Control Manager
- Engineering Processes Procedures and Personnel Manager
- ISMS Organization Points-of-Contact (POC) (3)
- Senior Safety Engineer
- Safety & Licensing Engineer
- Quality Assurance Programs Manager
- Management Assessment Coordinator

- Team Lead, ESQ Safety & Standards Team

Observations:

- Project Plan of the Day (POD) meeting
- Project Safety Committee Meeting
- Area Project Manager Coordination Meeting
- Reaffirmation to Quality meeting
- High Level Waste (HLW) Weekly Team meeting
- Critique of Error Found in Revision B Source Term Calculation
- Area Trend meeting
- Project Trend meeting
- Safety/Quality Council Meeting
- Safety Education through Observation (SETO) Meeting
- ISM Work Identification Meeting for Melter Off-Gas
- ISM III-Low Activity Waste (LAW) Hazard Control Selection for Mis-Transfer Event from Pretreatment

Discussion of Results:

Contractor procedures describe clear roles and responsibilities to provide feedback and continuous improvement including line management responsibility for safety.

Clear and consistent roles and responsibilities with respect to ISMS principles exist in WTP procedures and policies. Each person on the project is responsible for safety according to policy set by the Project Director in 24590-WTP-G63-MGT-001, *Project Integrated Safety Management System Policy*. The policy states that “Line ownership and worker involvement in ISMS functions are key aspects of the ISMS” and “feedback and continuous improvement will be provided to ensure effective ISMS implementation.”

The Quality Assurance program is defined in 24590-WTP-QAM-QA-001 Rev. 3, *Quality Assurance Manual* and clearly identifies line management’s roles and responsibilities with respect to feedback and continuous improvement. The Quality Assurance Manual describes how (1) work is prioritized, (2) hazards are analyzed, (3) standards and controls are identified/applied, (4) work is performed, and (5) performance is evaluated and improved. Specific ISMS responsibilities for each of the following project personnel are delineated in the Quality Assurance Manual:

- | | | |
|---|---|---------------------------------|
| • Project Director | • Project Mgr. | • Quality Assurance Mgr. |
| • Safety Assurance Mgr. | • Operations Mgr. | • Commissioning / Training Mgr. |
| • Process Operations Mgr. | • Research & Technology Mgr. | • Business Services Mgr. |
| • Project Controls Mgr. | • Engineering Mgr. | • Deputy Engineering Mgr. |
| • Construction Mgr. | • Environmental and Nuclear Safety Mgr. | • Acquisition Services Mgr. |
| • Project Archives & Document Control Manager | • Area Project Managers | |

Contractor procedures ensure that competence is commensurate with the responsibilities to provide feedback and continuous improvement.

Competencies are a principle focus in the employee hiring process. The project's Human Resources Manager was interviewed and the team found that Bechtel corporate processes are applied in the development of position descriptions. Project position descriptions are derived from standardized corporate competency requirements. In addition, every potential employee's education and experience is validated by an investigation before the potential employee is offered a position on the project.

Once on board, employees are subject to Personnel Training and Qualification requirements in accordance with Policy Q-02.2, *Personnel Training and Qualification*. According to the policy, management establishes initial and continuing training requirements and processes for their specific job category and function. Every exempt employee maintains a project training profile. The profiles are accessible on the internal project web site and identify new and completed training specific to the individual. Each employee is required to routinely access their training profile to determine if new training is necessary to maintain their competencies for their position. A training profile identifies training (accomplished and required) for required reading, class room, and computer based training (CBT). A training profile includes direct links (hyperlinks) to each procedure for required reading and CBT modules. After completing a training element, employees mark the training as complete in their training profile, and then send a separate signed record of completion to the WTP Training Records department.

Craft personnel on the construction site are from the local union and their training is commensurate with their position as a journeyman and apprentice craftsman. Training for all construction employees is managed, conducted, and recorded for construction site personnel as described in procedure 24590-WTP-GPP-CON-1301, *Construction Training*. A construction training database is maintained to identify, track, and record all construction training requirements for personnel.

Safety is a key criteria used by supervisors in annual performance evaluations of Bechtel personnel. Project staff are graded annually with respect to the Bechtel "Zero Accidents" policy and their support for Bechtel's safety program "through personal safety behavior/work practices, following all safety rules and procedures and reporting unsafe work practices/situations."

Contractor procedures ensure that priorities are balanced to ensure feedback is provided and continuous improvement results.

A number of performance measures have been established and are in use by WTP management. Feedback mechanisms are currently being established to provide project staff, management, and DOE with measures to determine ES&H performance. According to BNI, metrics will be established as described in 24590-WTP-GPP-SPEC-001 000, *WTP Project Safety Performance Objectives, Measures, and Commitments*. The procedure specifies that a minimum set of five metrics will be used as a measure of implementation status and effectiveness of the Project ISMS. The five performance areas are: (1) Total Recordable Case Rates; (2) Occupational Safety and Health Cost Index; (3) Hypothetical Radiation Dose to the Public (not used until radioactive materials are brought in the project); (4) Worker Radiation Dose; and (5) Reportable Occurrences and releases to the Environment. However, the procedure fails to identify goals

associated with each metric. The procedure also identifies a number of performance areas that “may be considered” by the project to measure and improve safety performance, but are not required to be considered. The team noted performance measures that “may be considered” did not include a method of calculation or an associated goal.

According to procedure 24590-WTP-GPP-SIND-005 001, Lessons Learned are distributed by managers to their employees through their required reading program. During 2002, 153 Lessons Learned bulletins were developed and sent to management for their review and use. Currently, work is underway to improve the distribution and tracking of lessons learned using a new Lessons Learned website. According to project personnel, the improved process for distributing and tracking lessons learned will be complete in March of 2003.

Contractor procedures require line and independent oversight or assessment activities at all levels. Oversight and assessment activities verify that work is performed within agreed upon controls.

The Quality Assurance Manual identifies project policies for Independent Assessments, Quality Assurance Surveillances, and Management Assessments. Each of these assessment tools are driven by specific procedures.

The purpose of management assessments is to enable managers to assess their own activities, identify strengths and weaknesses, identify potential behavioral issues, make improvements, and promote worker involvement. Management assessments are required to be scheduled, planned, conducted and tracked per procedure 24590-WTP-GPP-MGT-002, *Management Assessment*. Conditions adverse to quality that are identified during the assessment are to be documented in the Corrective Action Reporting System (CARS), and assessment findings that identify nonconformances are to be documented in nonconformance reports. Other observations or issues identified during management assessments may be tracked using the Recommendation and Issue Tracking System (RITS). Within the last few months, BNI has identified areas for improvement related to the timeliness and effectiveness of management assessments.

Independent Assessments and audits are conducted by project Quality Assurance personnel. Independent assessments are performed to verify compliance and determine the effectiveness of project requirements. Independent Assessment activities are governed by procedure 24590-WTP-GPP-QA-501B, *Independent Assessment (Audit)*.

Contractor procedures ensure oversight or assessment results are managed to ensure lessons are learned and applied; that issues are identified and managed to resolution; that fundamental causes are determined and effective corrective action plans are developed and implemented.

A primary method of feedback and improvement established on the WTP is through use of corrective action tracking. Procedure 24590-WTP-GPPP-QA-201, *Corrective Action*, is the procedure that describes the method for documenting, implementing, and verifying corrective action reports (CARs). A corrective action can address behavioral, procedural, programmatic, technical, and environmental conditions adverse to quality, safety, health, operations, security, and the environment. Corrective Action Reports are managed through the Quality Assurance Information System (QAIS) database.

Issues identified by external agencies, including DOE, are tracked in the QAIS database. Deficiencies identified in audits, surveillances, assessments, audits of suppliers & subcontractors, are required to be documented in CARS. For CARS identified as “significant” a Root Cause Analysis is conducted. A significant corrective action is one that, if uncorrected, could have serious effects on safety or plant operability. Project procedures require that the resolution of all corrective actions must be documented and submitted to a Quality Assurance Manager for verification and coordination with accountable organizations.

The current lessons learned database system is marginal based on its limitations. The present system is being provided inputs from a small number of sources. The database of lessons learned has limited search capability. These limitations prevent the present system from being adequate to support the WTP. (MAN I-3.1) Few lessons learned in the WTP lessons learned database are the result of WTP activities. Currently, 96 percent of the lessons learned are from sources outside of the WTP project. WTP corrective action processes (CARs, Surveillances, Audits, etc.) that might have broad applicability are not posted on the internal WTP lessons learned system. Lessons learned can be a good work practice or innovative approach that is captured and shared to promote repeat application. Lessons learned can also be the solution to an adverse work practice or experience that is captured and shared to avoid reoccurrence. BNI has recognized the need to improve the lessons learned program and is currently working on a prototype web-based system. The prototype identifies the following potential sources (of noteworthy practices and areas for improvement) for WTP lessons learned:

- Daily experiences on the project.
- Experiences and recollections from past projects.
- Project meetings in which problems and solutions are discussed.
- Existing project systems such as the Trend System.
- The existing (and growing) Bechtel corporate lessons learned systems available on BecWeb.
- RITS, QAIS, CAR, Total Installed & Operated Cost (TI&OC), Constructability, and other existing project databases (however, only “heavy hitters” should be moved to the Lessons Learned database).

- Technical magazines, trade journals, training courses and literature, etc.

Actions are well underway with improvements to the lessons learned program. If improvements are implemented as verbally described to the Phase I Verification Team by BNI, the new Lessons Learned system should fully meet the above criteria with respect to the application of lessons learned.

Contractor procedures ensure that performance measures or indicators and performance objectives are developed in coordination with DOE as required.

According to the WTP Project Integrated Safety Management System Description, Rev. 1 (January 30, 2003):

“The WTP project intends to develop a set of performance analysis metrics that address, for example those approved elements in the areas of ES&H, safety program administration and issue management. In response to contract requirements, these safety performance objectives, performance measures, and commitments are submitted for DOE approval.”

At the time of this review performance measures and goals have not yet been sufficiently developed and submitted for DOE approval per the WTP Project Integrated Safety Management System Description. (MAN I-3.2)

Contractor procedures require effective management and use of performance measures and objectives to ascertain the status of the ISM.

Chapter 7 of the WTP Project Integrated Safety Management Systems Description identifies how an approved ISMS will be maintained. The results of all formal assessment processes are required to be summarized in an annual ISMS Report. Details are contained in *WTP-Project Safety Performance Objectives, Measures and Commitments* (24590-WTP-GPP-SPEC-0001 Rev. 1). This procedure identifies the Environmental & Nuclear Safety (E&NS) Manager as responsible for the annual report being prepared and submitted to DOE. In preparing the annual report, the system description is reviewed to determine whether an update is required. The first update is carried on the Master Implementation Plan roll-out schedule. The process described in the procedure uses a collection of results from the feedback mechanisms and review of performance against the established metrics to identify updates.

Contractor procedures provide for regulatory compliance and enforcement as required by rules, laws, and permits such as PAAA, NEPA, RCRA, CERCLA, etc.

Price Anderson Amendments Act (PAAA); National Environmental Policy Act (NEPA); Resource Conservation and Recovery Act (RCRA); Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); and other applicable requirements are components of the established and approved regulatory authorization baseline. Contractor procedures tailored to the stage of the project for applicable federal and state regulatory requirements are

developed. The areas with specific procedural guidance are Quality Assurance Manual, Radiological Controls Manual, PAAA Compliance and reporting, and Environmental Plan and requirements. In some cases, the actual permits are in place and project managers track the major permits and other regulatory approvals they need for each building to keep visibility of when the approvals are needed and received. Feedback is factored into program and management reviews for improvements and will progress with the various stages of the project.

Phase II Implementation

During the course of the Phase I ISMS Verification Review for the project, several items were identified regarding the quality of implementation of some feedback processes. Although these items are outside the scope of this Verification Review, they are provided in this report to assist BNI with Phase II ISMS implementation. Specifically, during review of the Management Assessment process it was evident that the schedule had been reissued multiple times to account for slips in execution. It was noted that the Project Manager has identified self-assessments as an area for improvement, including timeliness of assessments. Additionally, while reviewing various corrective action tracking systems the need for continued management attention in this area was highlighted by the following examples:

- A review of the open Safety Action Tracking System (SATS) found most of the open items were overdue. (This item was corrected during the Verification Review.)
- A review of corrective actions from contractor self-assessments related to ISMS found a number of recommendations as closed with no action, and in one case the item was closed incorrectly while the issue still required corrective action.
- BNIs initial response to DOE Finding IR-02-012-01a relating to the correct code to be used for allowable seismic stresses was not responsive. Follow-up found that although the initial written response was non-responsive, the actual corrective actions taken by the contractor did correctly address the issue.

Conclusion:

Feedback information on the effectiveness of the ISMS through multiple processes has been established. Improvements in lessons learned and coordination with DOE on metrics will further improve the project's feedback mechanisms. Opportunities for improvement are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur as defined in project procedures. The criteria supporting this objective have been met, with two issues noted.

Issue(s):

MAN I-3.1: The current lessons learned database system is marginal based on its limitations. The present system is being provided inputs from a small number of sources. The database of lessons learned has limited search capability. These limitations prevent the present system from being adequate to support the WTP.

MAN I-3.2: At the time of this review performance measures and goals have not yet been sufficiently developed and submitted for DOE approval per the WTP Project Integrated Safety Management System Description.

Phase II project implementation issues:

- The Management Assessment schedule was reissued multiple times to account for slips in execution.
- All levels of corrective actions need increased emphasis as evidenced by the following:
 - Many safety issues show overdue in tracking systems
 - Reasons for due dates being extended or no action being taken are not entered
 - A BNI response to a DOE finding did not address the original issue

Noteworthy Practices:

None

Inspectors: <u> /s/ </u> Michelle Durham <u> /s/ </u> Will Ortiz	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Department of Energy	OBJECTIVE: DOE II-1	DATE: 2/12/03
--	----------------------------	----------------------

OBJECTIVE:

ORP procedures and mechanisms should ensure that work is formally and appropriately authorized and performed safely. ORP line managers should be involved in the review of safety issues and concerns and should have an active role in authorizing and approving work and operations. (CE 11-7)

Criteria:

1. ORP procedures and/or mechanisms are in place to establish a process for confirming readiness and authorizing operations.
2. ORP procedures and/or mechanisms ensure that the safety management system is properly implemented and line management oversight of the contractor's worker, public, environment, and facility protection programs is performed.
3. ORP procedures and/or mechanisms require day-to-day operational oversight of contractor activities through Facility Representatives.
4. ORP procedures and/or mechanisms ensure the implementation of quality assurance programs and ensure that contractors implement quality assurance programs.

APPROACH:

Records Review:

- ORP Organizational Chart, Draft, 1/14/03
- DOE/ORP-2002-21, *Project Execution Plan for the River Protection Project Waste Treatment and Immobilization Plant*, January, 2003
- ORP ID 110.1A, *Office of River Protection Facility Representative Program*, July 26, 2000
- ORP M 210.3, *ORP Quality Trending*, February 19, 2002
- ORP M 220.1 R1, *ORP Integrated Assessment Program*, May 16, 2002
- ORP M 220.1-1 R2, *ORP Management and Independent Assessments*, October 16, 2002
- ORP PD 220.1-1, *Conduct of AMSQ Assessments*, August 24, 2001
- ORP PD 220.1-4 R1, *ESQ Surveillances*, November 20, 2002
- ORP PD 220.1-6, *Qualification and Certification of Quality Assurance Assessment and Assessment Lead Personnel*, October 15, 2002
- ORP M 232.2 R1, *ORP Lessons Learned Program*, January 27, 2003
- ORP M 250.1, *ORP Directives Requirements Management System Manual*, September 3, 2002
- ORP M 251.1, *ORP Directives Requirements Management System Manual*, October 24, 2001
- ORP M 360.1, *Training and Qualifications*, November 19, 2001

- ORP M 411.1-1, R2, *Safety Management Functions, Responsibilities, and Authorities Manual for the U.S. Department of Energy, Office of River Protection, Draft*
- ORP M 412.1, *Consolidated Action Reporting System (CARS)*, August 8, 2001
- ORP PD 413.3-1, *WTP Baseline Change Control*, January 30, 2003, Draft
- ORP M 414.1-1 R1, *Quality Assurance Program Description*, January 15, 2003
- ORP M 414.1-4 R2, *WTP Balance-of-Plant Construction Oversight Program*, October 9, 2002
- ORP PD 414.1, *River Protection Project Quality Assurance Policy*, December 5, 2000
- ORP PD 414.1-2, *Office of Business and Administration Quality Assurance Program*, July 26, 2002
- ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*, August 10, 2001
- ORP N 440.1, *Federal Employee Occupational Safety and Health (FEOSH) Program*, July 25, 2002
- ORP ID 450.2-1, *Review and Approval of Standard/Requirements Identification Documents (S/RIDS)*, March 23, 2001
- ORP M 450.4, *Integrated Safety Management System Description*, August 8, 2002
- RL/REG-2000-03, *Review Guidance for the Nonradiological Worker Safety and Health Plan*, May 4, 2001
- Inspection Technical Procedure I-160, *Industrial Health and Safety Program Inspection*, May 18, 2001
- Inspection Technical Procedure I-162, *Industrial Health and Safety Inspection*, May 18, 2001
- RIMS Document, *Federal Employee Occupational Safety and Health (FEOSH), Hanford's Program*, May, 2002
- DOE ORP Oversight Schedule – Assessments, Inspections and Surveillances, January 20, 2003
- Letter, ORP to BNI, *Contract No. DE-AC27-01RV14136 – Office of Safety Regulation Approval of Bechtel National, INC (BNI) Nonradiological Worker Safety and Health Plan*, June 5, 2001
- 24590-WTP-ISMSD-ESH-01-001, Rev 0, *WTP Project Integrated Safety Management System Description*
- WTP Contract No. DE-AC27-01RV14136, Primarily, Standard 7, *Environment, Safety, Quality and Health*, of Section C and Section I.105, *Dear 952-223-71 Integration of Environment, Safety and Health into Work Planning and Execution (Jun 1997)*
- Trend Notice No. TN-24590-02-00758, *Implement IBC 2000 for Non-Structural Applications*, January 24, 2003, Draft
- Tank Farms Operations Daily Reports, sample of January/February reports
- 24590-WTP-PL-MG-01-001, Rev 0, *Interface Management Plan*, January 28, 2002
- Interface Team List for Interface Control Documents, January 15, 2003
- Letters, ORP, various Dates, *Contract No. DE-AC27-01RV14136 – Acceptance of Deliverable Item C.9.1, Interface Control Documents (ICD)*
- ICDs – sample
- ORP-105 Form, *ORP Directives Record of Decision Form*, for DOE O 450.1, February 6, 2003, and for DOE O 425.1B, September 5, 2002

- A-03-OSR-RPPWTP-001, *On-location Inspection Report for the Period October 11 through December 4, 2002* (consolidated inspection report for DOE ORP On-location inspector, construction site representative and facility representative)
- Integrated Project Team Trend Review Checklist, Draft
- Charter, ORP Facility Integration Project Teams, October 29, 2002
- OSR Work Plan, February 5, 2003
- ORP/OSR-2002-18, *Safety Evaluation Report for Waste Treatment and Immobilization Plant (WTP) Construction Authorization*, November 13, 2002
- Memorandum, ORP Manager, *Interim Management Walkthrough Program*, October 21, 2002

Interviews Conducted:

- Manager, ORP
- Assistant Manager, Waste Treatment and Immobilization Plant (WTP)
- WTP Federal Project Managers for HLW, LAW, and PT
- WTP Site and Facility Representatives
- Director, WTP Project Integration and Controls Division (WIC)
- WIC Interface Control Document coordinator
- WIC Project Control Estimators
- Director, WTP Engineering and Commissioning Division (WEC)
- Director, Office of Environmental Safety and Quality (ESQ)
- Team Lead, ESQ Safety and Standards Team
- Team Lead, ESQ Verification and Confirmation Team
- Team Lead, ESQ Quality and Industrial Safety Team (QIS)
- On-Location Inspector, ESQ Verification and Confirmation Team
- Director, ESQ Environmental Division
- Director, Office of Project Administration (OPA)
- ORP Executive Officer
- Director, Tank Farms Operations Division

Observations:

- ORP Manager's Staff Meeting
- Joint ORP/BNI Meeting, "Project Issues and Concerns Meeting"
- Joint ORP/BNI Meeting, "Project Issues and Concerns Meeting"
- WTP Safety Regulation Division (OSR) Status Meeting
- AMWTP daily staff meeting
- Construction site walk down with DOE Site Rep., On-site Inspector & Verification & Confirmation Team Lead
- Demonstration of ORP Consolidated Action Reporting System (CARS)

Discussion of Results:

ORP procedures and/or mechanisms are in place to establish a process for confirming readiness and authorizing operations. ORP procedures and/or mechanisms ensure that the safety management system is properly implemented and line management oversight of the contractor's worker, public, environment, and facility protection programs is performed. ORP procedures and/or mechanisms require day-to-day operational oversight of contractor activities through Facility Representatives.

ORP has procedures for establishing, documenting and maintaining Authorization Agreements, and currently has approved several limited construction authorizations and a construction authorization.

ORP maintains day-to-day operational oversight through the Federal Project Manager (FPM) responsible for each WTP facility, supported by their Integrated Project Teams (IPTs). ORP AMWTP maintains an on-location oversight presence including: a construction site representative, a facility representative, and an on-location OSR inspector at the WTP construction site.

ORP maintains, and is currently following, an Oversight Schedule for Assessments, Inspections and Surveillances of the WTP contractor. The Oversight Schedule is maintained by ESQ and integrates all oversight assessments, including those performed by OPA, AMWTP, AMTF and ESQ.

The on-location inspector facilitates the OSR inspections against the safety standards and hazard controls established in the authorization basis (including the Standards Requirements Document). During scheduled inspections, the on-location oversight team is supplemented by other members of ESQ OSR and contract personnel. Information regarding the progress and safety of the project is communicated daily to AMWTP and ORP senior management. Daily operational reports and weekly construction reports are distributed to appropriate ORP and HQ management.

The on-location team members have appropriate training and applicable experience to effectively perform their assigned duties. A facility representative qualification standard will be developed for the WTP. A site walk-down with two of the on-location team members was observed. Each demonstrated detailed knowledge of the site and status of ongoing work. They were cognizant and knowledgeable of recent construction problems for which resolution is ongoing. Open lines of communication between the site representatives and the BNI site manager exist.

Detailed inspection protocols have been developed to review and approve contractor safety management documentation and perform inspections of work activities. ORP has developed a comprehensive set of protocols specifically related to industrial safety and health management plans and onsite reviews of worker safety and health. The comprehensive nature and level of detail for these formal industrial safety and health inspection protocols are considered noteworthy (DOE II-1.1).

ORP procedures and/or mechanisms ensure the implementation of quality assurance programs and ensure that contractors implement quality assurance programs.

Section C, Standard 7, Section (e)(3), *Quality Assurance*, of the WTP contract states: “The Contractor shall develop a QA program, supported by documentation that describes overall implementation of QA requirements.” The Contractor’s QA program is defined in 24590-WTP-QAM-QA-01-001, *Quality Assurance Manual*. The ESQ OSR maintains the BNI quality assurance manual as part of the Authorization Basis, and reviews changes to the manual as an Authorization Basis Change Notice (ACBN). Several ABCN and associated safety evaluation reports were reviewed and found adequate. The ESQ OSR has conducted several documented assessments of BNI’s quality assurance program.

Conclusion:

DOE has established a comprehensive set of “regulatory” contract and ORP procedures to ensure work and engineering designs are fully analyzed for hazards and work is formally authorized. The criteria for this objective have been met.

Issues:

None.

Noteworthy Practices:

DOE II-1.1: The comprehensive nature and level of detail of ORP's formal industrial safety and health inspection protocols are considered noteworthy.

Inspector: <u> /s/ </u> Terry Krietz	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Department of Energy	OBJECTIVE: DOE II-2	DATE: 2/12/03
--	----------------------------	----------------------

OBJECTIVE:

ORP procedures and mechanisms ensure that hazards are analyzed, controls are developed, and that feedback and improvement programs are in place and effective. ORP line managers are using these processes effectively, consistent with FRAM and FRA requirements. (CE 11-8)

Criteria:

1. ORP procedures and/or mechanisms are in place that direct ORP line manager oversight to ensure that implementation of hazards mitigation programs and controls are established.
2. ORP procedures and/or mechanisms are in place that direct the preparation of the authorization basis documentation and oversee the implementation by the contractor. Procedures for development, review, approval, maintenance, and utilization of Authorization Agreements are implemented.
3. ORP procedures and/or mechanisms require that contractors develop a lessons learned program and monitor its implementation. A process is established for reviewing occurrence reports and approving proposed corrective action reports. A ORP process is established and effectively implemented to continuously improve efficiency and quality of operations. Corrective actions are developed, implemented, and tracked in order to profit from prior experience and the lessons learned. ORP provides effective line oversight of the contractor's self-assessment programs.

APPROACH:

Records Review:

- ORP Organizational Chart, Draft, 1/14/03
- DOE/ORP-2002-21, *Project Execution Plan for the River Protection Project Waste Treatment and Immobilization Plant*, January, 2003
- ORP ID 110.1A, *Office of River Protection Facility Representative Program*, July 26, 2000
- ORP M 210.3, *ORP Quality Trending*, February 19, 2002
- ORP M 220.1 R1, *ORP Integrated Assessment Program*, May 16, 2002
- ORP M 220.1-1 R2, *ORP Management and Independent Assessments*, October 16, 2002
- ORP PD 220.1-1, *Conduct of AMSQ Assessments*, August 24, 2001
- ORP PD 220.1-4 R1, *ESQ Surveillances*, November 20, 2002
- ORP PD 220.1-6, *Qualification and Certification of Quality Assurance Assessment and Assessment Lead Personnel*, October 15, 2002
- ORP M 232.2 R1, *ORP Lessons Learned Program*, January 27, 2003
- ORP M 250.1, *ORP Directives Requirements Management System Manual*, September 3, 2002

- ORP M 251.1, *ORP Directives Requirements Management System Manual*, October 24, 2001
- ORP M 360.1, *Training and Qualifications*, November 19, 2001
- ORP M 411.1-1, R2, *Safety Management Functions, Responsibilities, and Authorities Manual for the U.S. Department of Energy, Office of River Protection*, Draft
- ORP M 412.1, *Consolidated Action Reporting System (CARS)*, August 8, 2001
- ORP PD 413.3-1, *WTP Baseline Change Control*, January 30, 2003, Draft
- ORP M 414.1-1 R1, *Quality Assurance Program Description*, January 15, 2003
- ORP M 414.1-4 R2, *WTP Balance-of-Plant Construction Oversight Program*, October 9, 2002
- ORP PD 414.1, *River Protection Project Quality Assurance Policy*, December 5, 2000
- ORP PD 414.1-2, *Office of Business and Administration Quality Assurance Program*, July 26, 2002
- ORP M 440.1-2, *Industrial Health and Safety Oversight Plan for the Waste Treatment Plant Contractor*, August 10, 2001
- ORP N 440.1, *Federal Employee Occupational Safety and Health (FEOSH) Program*, July 25, 2002
- ORP ID 450.2-1, *Review and Approval of Standard/Requirements Identification Documents (S/RIDS)*, March 23, 2001
- ORP M 450.4, *Integrated Safety Management System Description*, August 8, 2002
- RL/REG-2000-03, *Review Guidance for the Nonradiological Worker Safety and Health Plan*, May 4, 2001
- Inspection Technical Procedure I-160, *Industrial Health and Safety Program Inspection*, May 18, 2001
- Inspection Technical Procedure I-162, *Industrial Health and Safety Inspection*, May 18, 2001
- RIMS Document, *Federal Employee Occupational Safety and Health (FEOSH), Hanford's Program*, May, 2002
- DOE ORP Oversight Schedule – Assessments, Inspections and Surveillances, January 20, 2003
- Letter, ORP to BNI, *Contract No. DE-AC27-01RV14136 – Office of Safety Regulation Approval of Bechtel National, INC (BNI) Nonradiological Worker Safety and Health Plan*, June 5, 2001
- 24590-WTP-ISMSD-ESH-01-001, Rev 0, *WTP Project Integrated Safety Management System Description*
- WTP Contract No. DE-AC27-01RV14136, Primarily, Standard 7, *Environment, Safety, Quality and Health*, of Section C and Section I.105, *Dear 952-223-71 Integration of Environment, Safety and Health into Work Planning and Execution (Jun 1997)*
- Trend Notice No. TN-24590-02-00758, *Implement IBC 2000 for Non-Structural Applications*, January 24, 2003, Draft
- Tank Farms Operations Daily Reports, sample of January/February reports
- 24590-WTP-PL-MG-01-001, Rev 0, *Interface Management Plan*, January 28, 2002
- Interface Team List for Interface Control Documents, January 15, 2003
- Letters, ORP, various Dates, *Contract No. DE-AC27-01RV14136 – Acceptance of Deliverable Item C.9.1, Interface Control Documents (ICD)*
- ICDs – sample

- ORP-105 Form, *ORP Directives Record of Decision Form*, for DOE O 450.1, February 6, 2003, and for DOE O 425.1B, September 5, 2002
- A-03-OSR-RPPWTP-001, *On-location Inspection Report for the Period October 11 through December 4, 2002* (consolidated inspection report for DOE ORP On-location inspector, construction site representative and facility representative)
- Integrated Project Team Trend Review Checklist, Draft
- Charter, ORP Facility Integration Project Teams, October 29, 2002
- OSR Work Plan, February 5, 2003
- ORP/OSR-2002-18, *Safety Evaluation Report for Waste Treatment and Immobilization Plant (WTP) Construction Authorization*, November 13, 2002
- Memorandum, ORP Manager, *Interim Management Walkthrough Program*, October 21, 2002

Interviews Conducted:

- Manager, ORP
- Assistant Manager, Waste Treatment and Immobilization Plant (WTP)
- WTP Federal Project Managers for HLW, LAW, and PT
- WTP Site and Facility Representatives
- Director, WTP Project Integration and Controls Division (WIC)
- WIC Interface Control Document coordinator
- WIC Project Control Estimators
- Director, WTP Engineering and Commissioning Division (WEC)
- Director, Office of Environmental Safety and Quality (ESQ)
- Team Lead, ESQ Safety and Standards Team
- Team Lead, ESQ Verification and Confirmation Team
- Team Lead, ESQ Quality and Industrial Safety Team (QIS)
- On-Location Inspector, ESQ Verification and Confirmation Team
- Director, ESQ Environmental Division
- Director, Office of Project Administration (OPA)
- ORP Executive Officer
- Director, Tank Farms Operations Division

Observations:

- ORP Manager's Staff Meeting
- Joint ORP/BNI Meeting, "Project Issues and Concerns Meeting"
- WTP Safety Regulation Division (OSR) Status Meeting
- AMWTP daily staff meeting
- Construction site walk down with DOE Site Rep., On-site Inspector & Verification & Confirmation Team Lead
- Demonstration of ORP Consolidated Action Reporting System (CARS)

Discussion of Results:

ORP procedures and/or mechanisms are in place that direct ORP line manager oversight to ensure that implementation of hazards mitigation programs and controls are established (FRAM 9.4.2.2). ORP procedures and/or mechanisms are in place that direct the preparation of the authorization basis documentation and oversee the implementation by the contractor. Procedures for development, review, approval, maintenance, and utilization of Authorization Agreements are implemented (FRAM 9.4.3.2).

ORP, through the WTP contract and ESQ OSR requirements, have established procedures for the establishment of documentation for hazard controls (including Technical Safety Requirements) for the prevention and mitigation of hazards. Based on interviews and documentation reviewed, OSR is actively reviewing and documenting preliminary safety analysis reports and construction authorization requests. BNI submittals and ORP reviews and approvals are maintained on the OSR web pages.

ORP procedures and/or mechanisms require that contractors develop a lessons learned program and monitor its implementation. A process is established for reviewing occurrence reports and approving proposed corrective action reports. An ORP process is established and effectively implemented to continuously improve efficiency and quality of operations. Corrective actions are developed, implemented, and tracked in order to profit from prior experience and the lessons learned. ORP provides effective line oversight of the contractor's self-assessment programs (FRAM 9.6.2).

ORP has utilized the BNI Integrated Safety Management System (ISMS) description to require a lessons learned program under the feedback and improvement core function. ORP monitors this program as part of their review of the ISMS description and through their daily operational reviews.

ORP facility representatives review all occurrence reports and are delegated the authority to approve corrective actions (Unusual occurrence reports and the associated corrective actions are approved by EM-5). All unusual occurrence reports are reviewed by a "murder board," comprised of all the facility representatives and the Director, Tank Farms Operations Division, prior to facility representative approval. Corrective actions are tracked in the Occurrence Reporting Program System for occurrence reports.

ORP uses their Consolidated Action Reporting System (CARS) as their primary means of tracking ORP actions and responses to ORP oversight documentation. It was noted that two ORP corrective actions from an ORP ISM review of CHG in September 2002 have been acted on, but corrective action tracking documentation could not be found in the CARS system.

ORP M 210.3, *ORP Quality Trending*, requires the review of several data sources to identify trends on a monthly basis and a deeper analysis on a quarterly basis. The criteria for the quality trend reports have not been sufficient to produce meaningful trends and lessons learned information (**DOE II-2.1**). The Director, ESQ confirmed that the trend reports had not been producing information useable by the Manager, and were planning on revising their format and analysis approach to the trend reports

While ORP has done some self-assessment, much of ORP's self-assessment efforts have been informal, not formally scheduled and tracked, results are not documented, and corrective actions have not been documented in CARS as required by both the ORP QA and management assessment requirements, or in line with DOE QA guidance (**DOE II-2.2**).

Conclusion:

DOE has implemented its procedures for identification of hazards and development of controls, conducting contractor line oversight. However, improvement in ORP's implementation of its management (self) assessment and lessons learned procedures is needed. The criteria for this objective have been met.

Issues:

DOE II-2.1: The criteria developed for ORP quality trend reports have not been sufficient to produce meaning trends and lessons-learned information sufficient to drive continuous improvement.

DOE II-2.2: ORP's self-assessment efforts have mostly been informal, not formally scheduled and tracked, results not documented, and improvement actions have not been documented in CARS as required by both the ORP QA and management assessment requirements, or in line with DOE QA guidance.

Noteworthy Practices:

None.

Inspector: <u> /s/ </u> Terry Krietz	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Hazards Identification and Standards Selection	OBJECTIVE: HAZ II-1	DATE: 2/12/03
--	----------------------------	----------------------

OBJECTIVE:

An integrated process has been established and is utilized to develop controls that mitigate the identified hazards present within a facility or activity. The set of controls ensure adequate protection of the public, worker, and the environment and are established as agreed upon by DOE. These mechanisms demonstrate integration, which merge together at the workplace. There exists a feedback process to the design group identified issues. (CE 11-3)

Criteria

1. Procedures and/or mechanisms are in place to develop, review, approve and maintain current all elements of the facility authorization documentation with an integrated workforce.
2. Procedures and/or mechanisms that identify and implement appropriate controls for hazards mitigation (including Radiation Control) within the facility or activity are developed and utilized by workers and approved by line managers. These procedures/mechanisms reflect the set of safety requirements agreed to by DOE.
3. Standards and requirements are appropriately tailored to the hazards.
4. Procedures and/or mechanisms are in place to effectively and accurately implement all aspects of the authorization documents.
5. Procedures and/or mechanisms exist to feedback to the design process, issues identified in construction that relate to hazard identification and controls, safety system deviations, or difficulties in construction planning and execution.

APPROACH:

Records Review:

- Procedure 24590-WTP-GPP-CON-1101, Revision 1, *Site Organization* (11/04/02)
- Procedure 24590-WTP-GPG-SIND-004, Revision 0, *Behavior Based Training* (9/28/01)
- Procedure 24590-WTP-PL-IS-01-001, Revision 1, *Nonradiological Worker Safety and Health Plan* (12/30/02)
- Procedure 24590-WTP-GPP-SIND-002, Revision 1, *STARRT/JHA* (11/04/02)
- Procedure 24590-WTP-GPP-SIND-013, Revision 1, *Hazardous Work Permit* (11/04/02)
- Procedure 24590-WTP-GPP-SIND-016, Revision 1, *Cranes-Use and Operation* (11/04/02)
- Procedure 24590- WTP-GPP-SIND-009, Revision 1, *Safety Watches* (11/4/02)

- Procedure 24590-WTP-GPP-CON 1902, Revision 0, *Tower Crane Interference and Boom Swing Coordination* (12/2/02)
- Procedure 24590-WTP-GPP-CON-3103, *Field Change Requests (FCRS)/Field Change Notices (FCNS)*
- Seven STARRT Cards
- Four Job Hazard Analyses
- Seven Training Profiles

Interviews Conducted:

- Field Safety Assurance Manager
- Three Lead Safety Area Representatives
- One Safety Area Representative
- General Superintendent
- Radiation Protection Officer
- Twelve Craft Persons
- One Crane Coordinator
- Three General Foremen
- Four Foremen
- Two Field Engineers

Observations:

- One “Safely Speaking” Meeting
- One Safety Education Through Observation (SETO) Meeting
- Five STARRT Card Meetings
- One concrete form construction evolution

Discussion of Results:

Procedures and/or mechanisms are in place to develop, review, approve and maintain current all elements of the facility authorization documentation with an integrated workforce.

Procedures governing the development of Authorization Basis (AB) documents and the transition process between design and construction are in place. These procedures provided adequate assurances that these documents are developed, reviewed, and approved in a controlled manner. Maintenance of AB documents is handled through out the process by close and continuous interface between design and construction. The interface between design and construction personnel was well documented, and interviews indicated that this interface was a critical component of the Bechtel National Inc. (BNI) work planning and execution process. Field engineering and construction procedures required the identification, analysis, and control of hazards associated with construction activities at the site.

Construction personnel were interviewed to evaluate the level of understanding of the design process and the AB interfaces that occurred to produce the final design drawings. All personnel interviewed indicated an adequate level of understanding as to the importance of AB controls as they relate to construction activities. Personnel clearly understood the procedures defining the FCR/FCN process and the critical role these procedures play in maintaining the AB. All personnel interviewed were consistent in stating that construction was conducted to the approved drawings and that no design changes were implemented without the input and concurrence of the cognizant design engineers.

Procedures and/or mechanisms that identify and implement appropriate controls for hazards mitigation (including Radiation Control) within the facility or activity are developed and utilized by workers and approved by line managers. These procedures/mechanisms reflect the set of safety requirements agreed to by DOE.

Interviews with various craft workers indicate they are satisfied with the level of involvement they have in identifying hazards and eliminating them or applying appropriate controls. For example, Safety Task Analysis Risk Reduction Talk (STARRT) Cards are always required for any type of work being conducted. These Cards are generated by the workers and their supervisors every morning prior to the start of shift. The Cards identify the various hazards that will be encountered and the controls required for eliminating or mitigating those hazards. They are signed by the workers in a given work area and are also signed by the applicable foreman, general foreman and superintendent. STARRT Cards are often filled out several times a day by the craft persons as conditions or work scope changes. They are often reviewed after lunch during the shift, and feedback is provided to line management at that time in a designated space on the STARRT Card. STARRT Cards are posted near the work site. Anyone entering the work area for more than a short period of time is required to review the STARRT Card and sign it signifying they understand the hazards and controls of the work in that area. Several STARRT Card pre-shift discussions with various craft were observed. The STARRT Card process appeared to be effectively implemented at WTP, and the process was endorsed by both workers and management. Typically, workers were actively involved, and line management (including foremen, general foremen, superintendents, the general superintendent, and field engineering) attended STARRT Card discussions regularly. Line management appeared to take their responsibility for safety at WTP seriously.

The version of the STARRT Card in the governing procedure revision in effect at the time of the ISMS Verification Review did not reflect the version that was actually used in the field. The Field Safety Assurance Manager pointed out that the version in the procedure was designated "SAMPLE" so that the procedure would not have to be revised every time a modification was made to the STARRT Card, which apparently could occur frequently. The governing procedure does discuss the various aspects of the STARRT Card currently used in the field, including providing feedback on the STARRT Card in the area provided. The Field Safety Assurance Manager committed to the inspector to revising the governing procedure as soon as possible to include the most current version of the STARRT Card.

Job Hazard Analyses (JHA) are required for larger, more complex jobs and new jobs. They spell out key job steps, tools, equipment, potential hazards of any type, hazard controls and any required Personnel Protection Equipment (PPE). They are prepared by a team consisting of a

safety representative, a field engineer, craft line management, and a craft representative. JHAs are reviewed by the workers conducting the work before the work is started and then periodically during the duration of the work, which could be for several weeks. Several examples of JHAs were reviewed by the inspector.

WTP has a tailored Radiation Protection Program. Since the site has no known contamination areas, there are only two quarterly radiation survey task descriptions for the site. One is a survey of the entire construction site, with special emphasis on fence lines and high traffic areas within buildings. The other quarterly survey task description collects the various area dosimeters from around the site to evaluate radiation exposures. There are three variable radiation survey task descriptions. One addresses surveying tumbleweeds after windstorms, one addresses surveying spoil piles and excavations, and the third addresses periodic surveys of the gravel pit from which concrete aggregate is mined. All surveys include use of both alpha and beta-gamma detectors. Workers are periodically briefed on various aspects of the WTP radiation protection program. The inspector interviewed the radiation protection officer and reviewed several examples of completed radiological survey reports and was satisfied that the radiation protection program is effectively protecting site workers from the potential hazards of radioactivity. There appeared to be no appreciable hazard from radiation exposure at WTP during facility construction.

Standards and requirements are appropriately tailored to the hazards.

Standards and requirements are appropriately tailored to the hazards identified. For higher hazard work, various procedures are invoked to eliminate or control hazards as the hazards are identified for the work being conducted. For example, if fire/explosion hazards, significant chemical exposure, or energized electrical circuits are involved in work being conducted, a Hazardous Work Permit is required that spells out special health and safety requirements. Another example would involve the requirement for use of Safety Watches for other types of high hazard evolutions such as those involving confined spaces or hot work. Finally, crane operations pose a significant hazard at WTP. There is one tower crane each for the High Level Waste, Low Activity Waste, and Pre-Treatment facilities. There are also two or more smaller support cranes associated with each of these areas with swing radii that can impact the tower cranes or each other. Therefore a crane coordinator is appointed by procedure to each of the three areas whose sole responsibility is to daily (or sometimes more frequently) establish quadrants of operations for the cranes in his area, in consultation with the other crane coordinators. The crane operators are not allowed to operate cranes outside of these quadrants without the crane coordinator's permission. The inspector interviewed one crane coordinator and was satisfied that the controlling procedure is being used at WTP.

In summary, the heightened controls discussed in the examples are not required for more normal, routine work but are examples of requirements being appropriately tailored to greater hazards at WTP.

Procedures and/or mechanisms are in place to effectively and accurately implement all aspects of the authorization documents.

The processes used to define the scope of work for specific construction activities at the WTP site are defined in 24590-WTP-GPP-CON-1201, *Construction Work Packages*, which is

supplemented by an implementation manual, 24590-WTP-GPG-CON-1203, also entitled *Construction Work Packages*. These documents clearly call out requirements for the tailoring of standards and requirements specified at the corporate and facility level to the specific hazards associated with activity level construction at the WTP site. All personnel interviewed clearly understood the necessity of procedure compliance in this area.

WTP site construction work package procedures require pre-job briefings to discuss and obtain feedback on the specific hazards and control strategies to be implemented prior to commencement of scheduled work. All affected personnel are required to attend these meetings, and the understanding of and agreement with identified hazards is documented prior to the start of work. Industrial safety and health subject matter experts also provide input at these pre-job briefings.

Procedures and/or mechanisms exist to feedback to the design process, issues identified in construction that relate to hazard identification and controls, safety system deviations, or difficulties in construction planning and execution.

Field Engineers utilize the Field Change Request/Field Change Notification (FCR/FCN) process to document problems with implementing design during construction. If problems are encountered in constructability, the cognizant Field Engineer may initiate a design change, through a FCR or FCN, to accommodate construction activities. The FCR must be approved by the Field Engineering Manager and by either Resident Engineering onsite, or Design Engineering offsite. The FCN is similar to the FCR in that it provides feedback on design problems and constructability to design engineering. However, Field Engineering approves FCNs, with concurrence from Design Engineering, within certain constraints spelled out in the governing procedure. The inspector reviewed a sample of FCNs and FCRs to ensure that the governing procedure is being followed. Field Engineers were also interviewed to evaluate their knowledge of the FCR/FCN process.

The Nonconformance Report (NCR) process is a mechanism whereby deviations in the construction of any aspect of safety systems is fed back into the design process for resolution. NCRs can be dispositioned as use-as-is, rework, repair, or reject. Design engineering may decide that a nonconforming item can be dispositioned as “repair” to make the item fit the application but not necessarily meet the design requirements. Rework requires an item to acceptably meet the application, and to conform to the prior specified requirement. Use-as-is items and repair items must be thoroughly evaluated by Design engineering. The inspector reviewed a sample of NCRs and confirmed that they appeared to follow the governing procedure for NCRs.

Another feedback mechanism in use is the Safety Education Through Observation (SETO) process, a program endorsed by line management and owned and executed entirely by craft workers. A SETO observer observes the work practices of a fellow worker and provides feedback on hazardous behaviors or practices. This mechanism mitigates hazards caused by careless behaviors.

Another feedback system is the Safety Action Tracking System (SATS) created in January 2003 by Field Safety Assurance. All open safety concerns are tracked to closure on this system. They are generated from any of a number of sources including STARRT Cards, inspections, management walkthroughs, or the safety committee. However, the inspector noted that the majority of the open concerns on SATS were already overdue as of February 3, 2003. The Field Safety Assurance Manager corrected this situation during the inspection by closing issues that could be closed or by appropriately extending due dates. This is considered an example of corrective action not being emphasized by management, discussed in the MAN I-3 Form 1.

Conclusion:

An integrated process has been established and is utilized to develop controls that mitigate the identified hazards present within a facility or activity. Controls ensure adequate protection of the public, worker, and the environment. Feedback processes exist to enable management to promote continuous improvement, and to the design group to identify design and constructability issues. The criteria supporting this objective have been met.

Issue(s):

None.

Noteworthy Practices:

None.

Inspector: <u> /s/ </u> Chris Sorensen	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Management II	OBJECTIVE: MAN II-1	DATE: 2/12/03
---	----------------------------	----------------------

OBJECTIVE:

Clear and unambiguous roles and responsibilities are defined and maintained at all levels within the facility or activity. Managers at all levels demonstrate a commitment to ISMS through policies, procedures, and their participation in the process. Facility or activity line managers are responsible and accountable for safety. Facility or activity personnel are competent commensurate with their responsibility for safety. (CE 11-6)

Criteria

1. Procedures and/or mechanisms are in place that define clear roles and responsibilities within the facility or activity to ensure that safety is maintained at all levels.
2. Facility or activity procedures specify that line management is responsible for safety.
3. Procedures and/or mechanisms are in place that ensure that personnel who supervise work have competence commensurate with their responsibilities.
4. Procedures and/or mechanisms are in place that ensure that personnel performing work are competent to safely perform their work assignments.
5. Procedures and/or mechanisms are in place and utilized by personnel that ensure identified work (i.e., mission-related tasks and process, processes or facility modification, maintenance work, etc.) can be accomplished within the standards and requirements identified for the facility.

APPROACH:

Records Review:

- 24590-WTP-G63-MGT-001, *Project Integrated Safety Management System Policy*
- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, *WTP Project Integrated Safety Management System Description*
- 24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*
- 24590-WTP-GPP-CON-1101, *Site Organization*
- 24590-WTP-GPP-CON-1201, *Construction Work Packages*
- 24590-WTP-GPP-CTRG-002, *Training*
- 24590-WTP-GPG-SIND-004, *Behavior Based Training*
- 24590-WTP-GPP-CON-1301, *Construction Training*
- 24590-WTP-GPP-SIND-001, *Reporting Occurrences In Accordance with DOE Order 232.1a*
- 24590-WTP-GPP-SIND-002, *STARRT/JHA*

- 24590-WTP-GPP-SIND-005, *Lessons Learned*
- 24590-WTP-GPP-SIND-008, *Lockout/Tagout*
- 24590-WTP-GPP-SIND-021, *Critiques*
- 24590-WTP-GPP-SENV-011, *Spill and Release Response*
- 24590-WTP-GPP-CON-3202A, *Excavation and Backfilling*
- Construction Training Profiles for the Site Manager, General Superintendent, LAW Area Superintendent, Field Safety Assurance Manager, 2 Safety and Health Specialists, 3 Construction Superintendents, 2 Field Engineers, 2 Construction General Foremen, 2 Construction Foremen, and several construction craft workers.
- Position Descriptions and resumes for the Field Safety Assurance Manager, an Area Superintendent, a Safety Engineer, a Construction Superintendent, the Project Field Engineer Manager, and two Field Engineers.
- Excavation Permit # 24590-WTP-EXPM-CON-P-02-223, *Installation of 12 inch Storm Drain*
- Lockout BOF-03-019, Lockout for 480 volt buried line to support excavation
- Lockout BOF-03-023, Lockout to support 13.8 KV outage work

Interviews:

- Project Director
- Project Manager
- Engineering Manager
- Manager for Environmental and Nuclear Safety
- Deputy Engineering Manager
- Field Engineering Manager
- Safety Assurance Manager
- Training Manager
- Site Manager
- General Superintendent
- Employee Concerns Coordinator
- Quality Assurance Manager
- Self Assessment Manager
- Balance of Facilities (BOF) Area Superintendent
- Low Activity Waste (LAW) Area Superintendent
- Project Superintendent
- High Level Waste (HLW) Area Superintendent
- Construction Training Coordinator
- Construction Human Resource Specialist
- Various Craftsmen, craft Foremen, and craft General Foremen

Observations:

- LAW Safety Task Analysis Risk Reduction Talk (STARRT) Card Briefing
- HLW STARRT Card Briefing
- BOF STARRT Card Briefing
- BOF Safety Meeting

- Excavation for Storm Drain Installation/STARRT card briefing
- Concrete Pour for Sub-Station/STARRT card briefing
- Installation of Re-bar in HLW/STARRT card briefing
- Removal of wall forms in LAW/STARRT card briefing
- Site Managers Plan of the Day
- HLW Plan of the Day
- STARRT Card briefing for 13.8 KV lockout and 13.8 KV electrical work
- Operation of 13.8 KV breaker, installation of ground cluster, installing lockout
- Response to a small hydraulic fluid spill
- Safety Education Through Observations (SETO) meeting
- Safety/Quality Council meeting
- Project Trend Meeting
- Area Project Manager (APM) Coordination Meeting

Discussion of Results:

Procedures and/or mechanisms are in place that define clear roles and responsibilities within the facility or activity to ensure that safety is maintained at all levels.

The *Project Integrated Safety Management System Policy*, 24590-WTP-G63-MGT-001, directs the development and implementation of an Integrated Safety Management System (ISMS) to design, construct, and commission the Waste Treatment Plant (WTP) Project. The *WTP Project Integrated Safety Management System Description*, 24590-WTP-ISMSD-ESH-01-001, Rev. 1, describes the project ISMS. Both clearly establish the expected safety posture for the WTP project. The specific roles and responsibilities for implementing the ISMS requirements are contained in procedure 24590-WTP-GPP-CON-1101, *Site Organization*. The safety roles and responsibilities are demonstrated in the field from the Site Manager down to the individual craftsmen.

Facility or activity procedures specify that line management is responsible for safety.

The contractor's ISMSD and *Integrated Safety Management Plan*, 24590-WTP-ISMP-ESH-01-001, specify that line management is responsible for safety. This requirement is also incorporated into procedures for the specific areas of the project. All personnel interviewed demonstrated a commitment to conducting work safely. Observations of field work validated this commitment. Workers and supervisors were engaged in planning work, analyzing hazards, implementing required controls, and improving the work process. An active safety culture is evident at all levels of the construction organization (MAN II-1.1)

Procedures and/or mechanisms are in place that ensure that personnel who supervise work have competence commensurate with their responsibilities.

Procedure 24590-WTP-GPP-CON-1301, *Construction Training*, describes the process for documenting personnel training and qualifications. Non-manual employees are selected by matching their qualifications to Job Descriptions, which specify the qualification requirements for the position. The training and education of eligible personnel are verified by Human Resources personnel. The resumes of those candidates that possess the required knowledge,

skills, and abilities are forwarded to the responsible hiring manager for selection. Waivers for instances where the minimum education and experience requirements are not met must be justified. The employees line manager assesses the training needs of the position and assigns appropriate training. A Training Profile is established to document completed training. For certain activities, the training is required to be completed before the employee can work independently. Continuing Training is accomplished by additions to the individual Training Profiles as training topics arise. The review team monitored several work activities and interviewed responsible supervisors. All personnel were knowledgeable of the work process and safety requirements. Senior Site Management demonstrated experience and competence in their areas of responsibility. (MAN II-1.2)

Procedures and/or mechanisms are in place that ensure that personnel performing work are competent to safely perform their work assignments.

The Craftsmen, craft Foremen, and craft General Foremen are trained and certified by union procedures. Personnel are designated as journeymen or apprentices. BNI requires additional training to instruct these personnel on the project-specific training requirements. Many of these additional topics are related to safety. This additional training is assigned and documented in accordance with 24590-WTP-GPP-CON-1301, *Construction Training*. The completed training is documented on personnel Training Profiles. The review team monitored several work activities and interviewed many craftsmen, foremen, and general foremen. All personnel were knowledgeable of their work processes and safety requirements.

Procedures and/or mechanisms are in place and utilized by personnel that ensure identified work (i.e., mission-related tasks and process, processes or facility modification, maintenance work, etc.) can be accomplished within the standards and requirements identified for the facility.

Procedure 24590-WTP-GPP-CON-1201, *Construction Work Packages*, defines the construction work package process. Construction Work Packages provide personnel with a concise parcel of documents defining the field work and identifying the necessary information to conduct the work safely and effectively. The Responsible Field Engineer (RFE) identifies the controlling documents and design requirements necessary to execute the work. The design documentation include drawings, specifications, procedures, vendor data, material requirements, and permits. The RFE performs a check of constructability to ensure what has been designed can be safely and efficiently built. A review of Construction Work Packages concluded that they contained sufficient detail to ensure the work was completed safely and in accordance with the appropriate standards and requirements.

Conclusion:

The ISMS Review Team concludes, through document review, personnel interviews, and observations of work activities, that clear and unambiguous roles and responsibilities are defined, maintained, and demonstrated at all levels of the organization. An active safety culture is evident at all levels of the construction organization. The criteria for this objective have been met.

Issue(s):

None

Noteworthy Practices:

MAN II-1.1: An active safety culture is evident at all levels of the construction organization.

MAN II-1.2: Senior management demonstrated experience and competence in their areas of responsibility.

Inspector: <u> /s/ </u> Mike Thomas	Team Leader: <u> /s/ </u> Larry Hinson
--	---

FUNCTIONAL AREA: Management	OBJECTIVE: MAN II-2	DATE: 2/12/03
--	----------------------------	----------------------

OBJECTIVE:

An integrated process has been established that ensures that mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process. (CE 11-5)

Criteria

1. Procedures and/or mechanisms are in place and utilized by personnel to collect feedback information such as self assessment, monitoring against performance objectives, occurrence reporting, and routine observation. Personnel assigned these roles are competent to execute these responsibilities.
2. Procedures are in place that develop feedback and improvement information opportunities at the site and facility levels as well as the individual maintenance or activity level. The information that is developed at the individual maintenance or activity level is utilized to provide feedback and improvement during future similar or related activities.
3. Procedures and/or mechanisms are in place and utilized by managers to identify improvement opportunities. Evaluation and analysis mechanisms should include processes for translating operational information into improvement processes and appropriate lessons learned.
4. Procedures and/or mechanisms are in place and utilized by managers to consider and resolve recommendations for improvement, including worker suggestions.
5. Procedures and/or mechanisms are in place, which include a process for oversight that ensures that regulatory compliance is maintained.

APPROACH:

Records Review:

- 24590-WTP-G63-MGT-001, *Project Integrated Safety Management System Policy*
- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, *WTP Project Integrated Safety Management System Description*
- 24590-WTP-ISMP-ESH-01-001, *Integrated Safety Management Plan*
- 24590-WTP-GPP-CON-1101, *Site Organization*
- 24590-WTP-GPP-CON-1201, *Construction Work Packages*
- 24590-WTP-GPP-CTRG-002, *Training*
- 24590-WTP-GPG-SIND-004, *Behavior Based Training*
- 24590-WTP-GPP-CON-1301, *Construction Training*
- 24590-WTP-GPP-SPEC-001, *WTP Project Safety Performance Objectives, Measures, and*

Commitments

- 24590-WTP-GPP-SIND-001, *Reporting Occurrences In Accordance with DOE Order 232.1a*
- 24590-WTP-GPG-CON-1204, *Dry Run Process*
- 24590-WTP-GPP-MGT-001, *Readiness Assessments*
- 24590-WTP-GPP-SIND-002, *STARRT/JHA*
- 24590-WTP-GPP-SIND-005, *Lessons Learned*
- 24590-WTP-GPP-MGT-002, *Management Assessment*
- 24590-WTP-GPP-QA-501B, *Independent Assessment (Audit)*
- 24590-WTP-GPP-SIND-008, *Lockout/Tagout*
- 24590-WTP-GPP-SIND-021, *Critiques*
- 24590-WTP-GPG-SENV-011, *Spill and Release Response*
- 24590-WTP-GPP-CON-3202A, *Excavation and Backfilling*
- Construction Training Profiles for the Site Manager, General Superintendent, LAW Area Superintendent, Field Safety Assurance Manager, 2 Safety and Health Specialists, 3 Construction Superintendents, 2 Field Engineers, 2 Construction General Foremen, 2 Construction Foremen, and several construction craft workers.
- Position Descriptions and resumes for the Field Safety Assurance Manager, an Area Superintendent, a Safety Engineer, a Construction Superintendent, the Project Field Engineer Manager, and two Field Engineers.
- Excavation Permit # 24590-WTP-EXPM-CON-P-02-223, Installation of 12 inch Storm Drain
- Lockout BOF-03-019, Lockout for 480 volt buried line to support excavation
- Lockout BOF-03-023, Lockout to support 13.8 KV outage work

Interviews Conducted:

- Project Director
- Project Manager
- Engineering Manager
- Manager for Environmental and Nuclear Safety
- Deputy Engineering Manager
- Field Engineering Manager
- Safety Assurance Manager
- Training Manager
- Site Manager
- General Superintendent
- Employee Concerns Coordinator
- Quality Assurance Manager
- Self Assessment Manager
- BOF Area Superintendent
- LAW Area Superintendent
- Project Superintendent
- HLW Area Superintendent
- Construction Training Coordinator
- Construction HR Specialist

- Various Craftsmen, Craft Foremen, and Craft General Foremen
- Site Lessons Learned Coordinator

Observations:

- LAW STARRT Card Briefing
- HLW STARRT Card Briefing
- BOF STARRT Card Briefing
- BOF Safety Meeting
- Excavation for Storm Drain Installation/STARRT card briefing
- Concrete Pour for Sub-Station/STARRT card briefing
- Installation of Re-bar in HLW/STARRT card briefing
- Removal of Wall Forms in LAW/STARRT card briefing
- Site Manager's Plan of the Day
- HLW Plan of the Day
- STARRT Card briefing for 13.8 KV lockout and 13.8 KV electrical work
- Operation of 13.8 KV breaker, installation of ground cluster, installing lockout
- Response to a small hydraulic fluid spill
- SETO Meeting
- Safety/Quality Council Meeting
- Project Trend Meeting
- APM Coordination Meeting
- Site Manager's Safety Walkdown

Discussion of Results:

Procedures and/or mechanisms are in place and utilized by personnel to collect feedback information such as self assessment, monitoring against performance objectives, occurrence reporting, and routine observation. Personnel assigned these roles are competent to execute these responsibilities.

Feedback information is collected in accordance with the following procedures: 24590-WTP-GPP-SIND-005, *Lessons Learned*; 24590-WTP-GPP-SIND-001, *Reporting Occurrences In Accordance with DOE Order 232.1a*; 24590-WTP-GPP-SPEC-001, *WTP Project Safety Performance Objectives, Measures, and Commitments*; 24590-WTP-GPP-SIND-021, *Critiques*; 24590-WTP-GPP-MGT-002, *Management Assessment*; and 24590-WTP-GPP-QA-501B, *Independent Assessment (Audit)*. The STARRT card and SETO programs provide real-time feedback information concerning safety. Additionally, verification team members accompanied the Site Manager on his weekly safety walkdown. The lessons learned program is described in 24590-WTP-GPP-SIND-005, *Lessons Learned*. The contractor admitted that the lessons learned process is in its infancy; however, the process has been developed. To date, the vast majority of lessons learned are related to issues outside the project. The development of project specific lessons learned is planned. All personnel interviewed were knowledgeable on the feedback programs.

Procedures are in place that develop feedback and improvement information opportunities at the site and facility levels as well as the individual maintenance or activity level. The information that is developed at the individual maintenance or activity level is utilized to provide feedback and improvement during future similar or related activities.

Feedback information is collected in accordance with the following procedures: 24590-WTP-GPP-SIND-005, *Lessons Learned*; 24590-WTP-GPP-SIND-001, *Reporting Occurrences In Accordance with DOE Order 232.1a*; 24590-WTP-GPP-SPEC-001, *WTP Project Safety Performance Objectives, Measures, and Commitments*; 24590-WTP-GPP-SIND-021, *Critiques*; 24590-WTP-GPP-MGT-002, *Management Assessment*; and 24590-WTP-GPP-QA-501B, *Independent Assessment (Audit)*. The STARRT card and SETO programs provide real time feedback information concerning safety. STARRT cards are reviewed by management for comments/issues. These are tracked in the Safety Action Tracking System for improving future operations. A dry run of new construction work practices is utilized for testing and validating procedures, specifications and other documentation. Dry runs are carried out in the field in as realistic a situation as possible. All identified issues are corrected prior to the actual performance of the work. These requirements are contained in 24590-WTP-GPG-CON-1204, *Dry Run Process*. The Dry Run process is an effective feedback and improvement tool. (MAN II-2.1)

Procedures and/or mechanisms are in place and utilized by managers to identify improvement opportunities. Evaluation and analysis mechanisms should include processes for translating operational information into improvement processes and appropriate lessons learned.

Several methods are documented for identifying and collecting operational information for translating into the improvement process and appropriate lessons learned. These include: 24590-WTP-GPP-SIND-002, *STARRT/JHA*; 24590-WTP-GPP-SIND-005, *Lessons Learned*; 24590-WTP-GPP-MGT-002, *Management Assessment*; 24590-WTP-GPG-CON-1204, *Dry Run Process*, and 24590-WTP-GPP-MGT-001, *Readiness Assessments*. Discussions with the site Lessons Learned Coordinator indicated he is still finalizing all the input mechanisms to the Lessons Learned Program. The program is programmatically solid; however, the implementation is in its infancy. The construction management must continue to evaluate the implementation to ensure an effective program is in place. (MAN II-2.2)

Procedures and/or mechanisms are in place and utilized by managers to consider and resolve recommendations for improvement, including worker suggestions.

Recommendations for improvement and worker suggestions are collected in a variety of ways including: 24590-WTP-GPP-SIND-002, *STARRT/JHA*; 24590-WTP-GPP-SIND-005, *Lessons Learned*; 24590-WTP-GPP-MGT-002, *Management Assessment*; 24590-WTP-GPG-CON-1204, *Dry Run Process*, and 24590-WTP-GPP-MGT-001, *Readiness Assessments*. Worker involvement in the work process was evident during observation of the site evolutions. Input from all levels of the construction work force is considered when planning and conducting work.

Procedures and/or mechanisms are in place including a process for oversight that ensures that regulatory compliance is maintained.

Readiness Assessments are conducted prior to commencing major scheduled or planned field work activities. This review includes risk evaluation, determining if management and customer expectations are met, and the appropriate and relevant regulatory requirements are addressed to achieve the desired objective of the work. This process is described in 24590-WTP-GPP-MGT-001, *Readiness Assessments*. Independent Assessments are conducted by the Quality Assurance Department in accordance with 24590-WTP-GPP-QA-501B, *Independent Assessment (Audit)* to verify compliance with project requirements. The Management Assessment program requires annual assessments on Environmental and Nuclear Safety, Engineering, and other areas related to regulatory compliance.

Conclusion:

The ISMS Review Team concludes, through document review, personnel interviews, and observation of work activities, that an integrated process has been established to ensure continuous improvements through an assessment and feedback process at all levels of the work process. The criteria for this area have been met.

Issue(s):

MAN II-2.2: The implementation of an effective Lessons Learned Program is not complete.

Noteworthy Practices:

MAN II-2.1: The Dry Run process is an effective feedback and improvement tool.

Inspector: _____ Mike Thomas	Team Leader: _____ Larry Hinson
---------------------------------	------------------------------------

FUNCTIONAL AREA: Construction Operations	OBJECTIVE: OPS II-1	DATE: 2/12/03
---	----------------------------	----------------------

OBJECTIVE:

An integrated process has been established and is utilized to effectively plan, authorize and execute the identified work for the facility or activity. (CE 11-4)

Criteria

1. Procedures and/or mechanisms are in place to ensure that work planning is integrated at the individual activity level fully analyzes hazards and develops appropriate controls.
2. Procedures and/or mechanisms are in place which ensures that there is a process used to confirm that the facility or activity and the construction work force are in an adequate state of readiness prior to authorizing the performance of the work.
3. Procedures and/or mechanisms are in place that ensures there is a process used to authorize and initiate construction activities.
4. Procedures and/or mechanisms are in place which ensures that safety requirements are integrated into work performance.
5. Procedures and/or mechanisms are in place which ensures that adequate performance measures and indicators, including safety performance measures are established for the work.
6. Workers (see definition) actively participate in the work planning process.
7. Procedures and/or mechanisms demonstrate effective integration of safety management.

APPROACH:

Records Reviewed:

- JHAs for concrete placements, rebar installations, electric work, welding, grinding, and general tours.
- Copies of completed STARRT cards.
- 24590-WTP-GPP-CON-1101, *Site Organization*
- 24590-WTP-GPP-CON-1401, *Construction Subcontract Management*
- 24590-WTP-G63-HR-003B, *Employee Qualification for Assignment*
- 24590-WTP-GPG-CON-1204, *Dry Run Process*
- 24590-WTP-PL-ENV-01-005, *WTP Construction Environmental Control Plan*
- 24590-WTP-GPP-CON-1201, *Construction Work Packages*
- 24590-WTP-GPP-CON-3105, *Special Instruction for Construction Work Package*
- 24590-WTP-GPP-SIND-024, *General Work Safe Practice*
- 24590-WTP-GPP-SND-002, *STARRT/JHA*

- 24590-WTP-GPP-SND-013, *Hazardous Work Permit*
- 24590-WTP-GPP-QA-206, *Stop Work*
- 24590-WTP-GPP-SENV-008, *Pollution Prevention/Waste Minimization*
- 24590-WTP-GPP-GCB-00100, *Field Material Management*
- 24590-WTP-GPP-SIND-004, *Behavior Based Training*
- 24590-WTP-GPP-SIND-005, *Lessons Learned*
- 24590-WTP-GPP-SIND-008, *Lockout Tagout*
- 24590-WTP-3DP-G013-00003, *Lessons Learned System*
- 24590-WTP-GPP-SPEC-001, *WTP Project Safety Performance Objectives, Measures, and Commitments*
- Exhibit G, Subcontractor's Safety & Health Plan Requirements for the Chicago Bridge and Iron (CBI) subcontract.
- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, *WTP Project Integrated Safety Management System Description*
- Construction Work Package (CWP), Special Instructions for CWP, and Pour Card for Concrete Placement PTF-C-0010-2 in the Pretreatment (PT) Facility.

Interviews Conducted:

- Site Manager
- General Superintendent
- Civil Superintendent
- Piping Superintendent
- Electrical/Instrumentation & Control Superintendent
- HLW Area Superintendent
- PT Area Superintendent
- BOF Area Superintendent
- Field Safety Assurance Manager
- HLW Senior Safety Engineer
- LAW Senior Safety Engineer
- LAW Area Field Engineer
- HLW Area Field Engineer
- PT Lead Senior Civil Field Engineer
- PT Senior Civil Field Engineer
- PT Civil Field Engineer
- BNI Subcontract Coordinator for the Chicago Bridge & Iron (CBI) Subcontract
- CBI Safety Manager
- SETO Team Member
- Laborer General Foreman (2)
- Laborer Foreman
- Laborer craft personnel (4)
- Boilermaker General Foreman
- Boilermaker craft personnel (5)
- Carpenter craft personnel (4)
- Electrician craft personnel (2)
- Pipefitter Foreman

- Pipefitter craft personnel (3)

Observations:

- General Superintendent's Plan of the Day (POD) Meeting
- Low Activity Waste (LAW) POD
- Site Manager's POD
- Stretch and Flex exercises at PT and BOF
- Weekly Safety briefing at PT
- Concrete Scheduling Meeting
- Special Instructions Planning Meeting for Concrete Placement PTF-C-0010-2 in the PT Facility
- STARRT card briefings for Concrete Placements at PT and the Switchgear Building
- JHA briefing for Concrete Placement at PT
- STARRT card briefing for BOF plumbers (pipefitters)
- Accompanied a Safety Education Through Observation (SETO) observer on an observation in the HLW facility
- Weekly SETO meeting
- Concrete Placement at PT
- Concrete Placement at Switchgear Building
- HLW Civil Planning & Scheduling Meeting

Discussion of Results:

Procedures and/or mechanisms are in place to ensure that work planning is integrated at the individual activity level fully analyzes hazards and develops appropriate controls.

Construction Work Packages (CWP) are developed for units of field work in each Area. Field Engineering, Area and Craft Supervision, and Safety Assurance are responsible for developing the CWP. By procedure 24590-WTP-GPP-CON-1201, *Construction Work Packages*, each work package must clearly define scope, assess the hazards associated with the scope, and initiate JHAs in accordance with the STARRT/JHA procedure. This process was verified in the review of the CWP, Special Instructions for the CWP, and the pre-job/STARRT card briefing for the Concrete Placement at the PT Facility. The STARRT card briefing was very detailed and clearly addressed potential hazards that the crew could face during the pour. Crewmembers were given the opportunity to ask questions and provide additional input. The JHA was referred to in the CWP but was not available at the STARRT briefing. When the verifier inquired as to the location, the JHA for concrete placing was brought out from the Area office and briefed prior to the placement. This process was also validated during the review of another CWP and also at the daily concrete scheduling meeting attended on 2/3/03. At the meeting, lessons learned from previous placements were discussed for upcoming scheduled placements to improve efficiency and safety.

There does not appear to be clear direction as to when a JHA should be briefed to a work crew. JHAs for commodity work, such as placing concrete, installing rebar, installing piping, are generic by discipline and are not covered in daily briefings. STARRT cards are briefed each day and cover the hazards that affect the daily work in each area. Both the Construction Work Package Procedure and the STARRT/JHA procedure would lead one to believe that these JHAs need to be briefed daily. Discussions with both craft and project supervision resulted in recommendations for either weekly or bi-weekly. This process should be clarified. **(OPS II-1.1)**

Procedures and/or mechanisms are in place which ensures that there is a process used to confirm that the facility or activity and the construction work force are in an adequate state of readiness prior to authorizing the performance of the work.

Each Area team at the WTP project conducts daily Plan-of-the-Day meetings that review and coordinate all issues associated with the scheduled work for their Areas. In addition, each functional discipline group meets regularly to coordinate assets needed such as personnel, crane and equipment, etc, to support Area work requirements. All personnel at the WTP project have a Training Profile that identifies what training and skills are necessary for them to perform their jobs. Each discipline supervisor has access to all personnel training files and can verify any deficiencies on a real time basis. This process was verified through personal attendance at numerous planning meetings and review of training profiles for multiple craft and non-manual personnel.

Procedures and/or mechanisms are in place that ensures there is a process used to authorize and initiate construction activities.

The Construction Work Package procedure clearly identifies the steps necessary to define the work being performed, address the installation and inspection requirements, and preparation checks needed to assure the work will be ready to perform. For concrete placements, a pour card is utilized that requires signatures from QA and Field Engineering ensuring that all embedments and sleeves are in place and reinforcing and mix designs are as designed prior to placement. Piping Work Packages include spool cards that identify spools, hangers, welds, and valves that will be installed as part of the package. Once the work package is ready to be worked, the craft supervisor conducts a pre-job STARRT briefing that defines to each participant what the work task is and how they plan to safely perform it. All workers participate in the briefing and actively provide feedback to the supervisor that can improve the plan and also identify additional hazards that may have been missed in the preparation of the STARRT card. This process was verified on the concrete placement at the PT Building on 2/4/03 and the concrete placement at the Switchgear Building on 2/5/03.

Procedures and/or mechanisms are in place which ensures that safety requirements are integrated into work performance.

Construction Work Packages (CWP) are utilized by Field Engineering, Supervision, Quality Control and others to assist in the installation and inspection of various commodities in the WTP facilities. Each CWP provides construction personnel with the appropriate documents to perform quality work safely and efficiently. During the development of the work package, the

appropriate Field Safety Assurance Representative, Superintendent, and Field Engineer is responsible to support the review of possible hazards and initiate JHAs in accordance with the STARRT/JHA procedure.

This process was verified during the review of CWP's, STARRT card and JHA briefings in the field, and attendance at several planning meetings throughout the team's visit.

Procedures and/or mechanisms are in place which ensures that adequate performance measures and indicators, including safety performance measures are established for the work.

The work scope within each Area is broken into discrete packages and is tracked by cost code. Weekly cost and schedule meetings are conducted by each Area to evaluate the progress to date and plan for the upcoming work. Productivity Factor (PF) is utilized as a metric to track how efficient the work is being performed compared to the baseline estimate and schedule. A PF factor of one or less indicates that the work is being performed as estimated or below the estimate. This information is combined with successful completion of scheduled milestones and the OSHA recordable rate into the "Share for Success" Program. The program provides an incentive for all employees to receive a monetary reward if the work is completed efficiently and safely.

The SETO program collects data from daily observations of craft workers and categorizes the "at risk" behaviors that were witnessed. This information is distributed throughout the Site via a weekly report and is briefed at daily and weekly safety meetings. SETO membership is included in the Site Safety Committee which is chaired by the Site Manager and other senior management. Trends of "at risk" behavior and discussion of recordable incidents are used to develop corrective actions for future work. Also, the Safety Data System collects data from project first aid cases and incidents and sorts it in several categories and provides a causal analysis. The information is displayed throughout the Site and is also utilized by management to improve safety.

The SETO observation process was verified during a craft observation in the HLW building on 2/4/03. During the weekly SETO meeting on 2/5/03, "at risk" behaviors were summarized in the weekly report and were evaluated by team members for appropriate feedback to be provided to safety briefings. Interviews with various discipline superintendents noted that they utilized the information to improve safety within their craft training programs.

Workers actively participate in the work planning process.

In accordance with procedure 24590-WTP-GPP-CON-1201, *Construction Work Packages*, each work package must clearly define scope, access the hazards associated with the scope, and initiate JHAs in accordance with the STARRT/JHA procedure. The STARRT/JHA procedure states that the supervisor will discuss the hazards of the project/facility with the employees to compile information necessary to complete the STARRT tag. They are to ensure that employees are trained in the STARRT/JHA process and that they are encouraged to provide feedback to improve job safety. In addition, during the development of the JHA, input from safety, industrial hygiene, health physics, field engineering, and the crafts involved should be obtained.

Throughout most of the procedures reviewed, it was clearly noted that all personnel, regardless of position, have stop-work authority if they feel there is potential imminent danger to themselves, other workers, or the environment.

This process was verified during several STARRT card briefings. Open discussions were conducted and input was requested in every case from the craft personnel in attendance at the briefing. The workers were enthusiastic and provided good input to the briefing. During interviews with numerous craft workers in all Areas of the project, all responded that they felt their input was well received and they were part of the planning process. Most stated that the safety program at WTP was among the best they have worked under.

Procedures and/or mechanisms demonstrate effective integration of safety management.

The procedures reviewed during the verification process consistently referenced the Project's Integrated Safety Management System and clearly identified who is responsible for insuring the safe implementation of the procedures and the work associated with them. All planning and staff meetings attended during the verification period started with a safety topic and included safety issues as part of the planning process. Daily STARRT card briefings were conducted and input from craft personnel was encouraged and accepted with sincerity. The hazards associated with the daily work were identified and clearly discussed. Interviews with all craft personnel consistently revealed that they felt that their input was welcomed and work is encouraged to be done safely. Most stated that the project was managed more safely than others they have worked on (see MAN II-1.1).

Conclusion:

An integrated process exists that plans, authorizes, and executes work in the field in a safe manner and contains review and hold points to insure quality is maintained. The team concept for each Area provides continuity in the development and planning of work. Area Superintendents can rely on a dedicated team that is totally familiar with all components and systems in their facility. Workers are encouraged to participate in the planning process and identify hazards that they feel are not clearly addressed. Feedback is provided in planning meetings and is reviewed during the STARRT/JHA process. The criteria for this objective have been met.

Issue(s):

OPS II-1.1: The frequency at which work crews should be briefed on JHAs has not been clearly established.

Noteworthy Practices:

OPS II-1.2: The Area Organization concept for the project instills “ownership” for each Area Team and allows them to plan, organize, and execute each field activity in a safe and efficient manner.

Inspector: <u> /s/ </u> Pat Burke	Team Leader: <u> /s/ </u> Larry Hinson
--	---

FUNCTIONAL AREA: Configuration Management	OBJECTIVE: CONF II-1	DATE: 2/12/03
--	-----------------------------	----------------------

OBJECTIVE:

Within the Configuration Management (CM) area a process exists to ensure the integrity and capabilities of the safety systems, safety features and other significant design features are maintained. There is an adequate process for including configuration management within the authorization and control of work process, as well as a process for identifying opportunities for feedback and continuous improvement. Within the Configuration Management area, Line Managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE 11-2, CE 11-3, CE 114, CE 11-5, CE 11-6)

Criteria

1. Procedures and/or mechanisms consider Configuration Management in the planning of individual work items to ensure that hazards are analyzed and controls are not changed.
2. Procedures and/or mechanisms for the Configuration Management area contain clear roles and responsibilities.
3. Procedures and/or mechanisms for the Configuration Management area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the Configuration Management area require that personnel who are assigned to the Configuration Management area have a satisfactory level of competence.
5. Procedures and/or mechanisms for the Configuration Management area require that within the Configuration Management area feedback and continuous improvement results.

APPROACH:

Records Review:

- 24590-WTP-PL-MG-01-002, Rev. 1, December 31, 2002: *RPP-WTP Configuration Management Plan*
- 24590-WTP-DM-CON-02-001, Rev. 1, December 31, 2002: *Site Distribution Matrix*
- 24590-WTP-GPP-CON-1201, Rev. 2, November 7, 2002: *Construction Work Packages*
- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, January 30, 2003: *WTP Project Integrated Safety Management System Description, Section 4.5.4 and Section 5*
- 24590-WTP-GPG-CON-1203, Rev. 0, January 16, 2003: *Guide for Construction Work Packages*

- 24590-WTP-GPP-CON-1101, Rev. 1, November 4, 2002: *Site Organization*
- 24590-WTP-RPT-ENG-01-001, Rev. 0, April 17, 2002: *Technical Baseline*
- 24590-WTP-3DP-G04B-00062, Rev. 3, November 27, 2002: *Disposition of Field Change Request/Field Change Notice*
- 24590-WTP-3DP-G04T-00903A, Rev. 1, November 4, 2002: *System Descriptions*
- 24590-WTP-GPP-CON-3103, Rev. 2, December 19, 2002: *Field Change Requests/Field Change Notices*
- 24590-WTP-GPP-CON-7107, Rev. 2, December 17, 2002: *Field Project Document Control*
- 24590-WTP-GPP-CON-7104, Rev. 2, January 2, 2003: *Nonconformance Reporting and Control*
- 24590-WTP-3DP-G04B-00005, Rev. 1, November 4, 2002: *Configuration Management*
- 24590-WTP-3DP-G04B-00046, Rev. 3, November 22, 2002: *Engineering Drawings*
- 24590-WTP-3DP-G04B-00049, Rev. 3, November 27, 2002: *Engineering Specifications*
- 24590-WTP-3DP-G04T-00901, Rev. 2, December 26, 2002: *Design Change Control*
- Field Change Request (FCR) 24590-WTP-FCR-C-02-132
- FCR 24590-WTP-FCR-C-02-034
- FCR 24590-WTP-FCR-C-02-062
- FCR 24590-WTP-FCR-C-02-136
- FCR 24590-WTP-FCR-C-02-151
- FCR 24590-WTP-FCR-C-02-160
- Field Change Notice (FCN) 24590-WTP-FCN-M-02-001
- FCN 24590-WTP-FCN-E-02-001
- FCN 24590-WTP-FCN-P-02-002
- FCN 24590-WTP-FCN-C-02-001
- Nonconformance Report (NCR) 24590-WTP-NCR-CON-02-152
- NCR 24590-WTP-NCR-CON-02-180
- NCR 24590-WTP-NCR-CON-02-199
- NCR 24590-WTP-NCR-CON-02-213
- NCR 24590-WTP-NCR-CON-02-194
- NCR 24590-WTP-NCR-CON-03-005
- Configuration Management Computer Based Training
- 20 Training Profiles

Interviews Conducted:

- Field Engineering Manager
- Manager of Engineering
- Manager of Engineering Processes, Procedures, and Personnel
- Discipline Chief Engineer, Mechanical and Process Engineering
- Area Project Manager
- Systems Engineering Manager
- Configuration Management Supervisor
- Resident Engineering Manager
- Civil/ Structural Supervisor for Pretreatment
- Lead Concrete/Structural Engineer for Pretreatment
- Two Field Engineers

- One Document Control Clerk
- Two Craft General Foremen
- Two Craft Foremen
- Two Carpenter Craft

Observations:

None.

Discussion of Results:

Procedures and/or mechanisms consider Configuration Management in the planning of individual work items to ensure that hazards are analyzed and controls are not changed.

Procedure 24590-WTP-GPP-CON-1201, *Construction Work Packages*, defines the methodology by which work scope is defined and hazards associated with the specific work scope are identified and controlled. The responsible Field Engineer (FE) and responsible Superintendent define the work scope for a particular task, such as piping installation, concrete placement, or electrical work. The FE then identifies the necessary controlling documents and requirements design documents needed to execute the work and maintain configuration control. This design documentation includes design drawings, specifications, procedures, vendor data, material requirements, etc. These design documents incorporate the hazard analysis and control strategies defined in Procedure 24590-WTP-GPP-SANA-002, *Hazard Analysis, Development of Hazard Control Strategies and Identification of Standards*. Application of this procedural process ensures that hazards identified for plant operations have sufficient control strategies incorporated into plant design. The inspector confirmed through interviews that Field Engineers are aware that no changes can be made to plant design without appropriate change notice documentation, such as FCRs and FCNs, that is fed back to design engineering for approval or concurrence. This process ensures configuration control of WTP is maintained. Hazard identification, analysis and controls for the specific work scope are typically accomplished through the job hazard analysis which is attached to the construction work package prior to work proceeding.

Procedures and/or mechanisms for the Configuration Management area contain clear roles and responsibilities.

The WTP Configuration Management Plan assigns responsibilities for the Engineering Managers who provide oversight of the CM program. It also states that design engineers, area project engineering managers, and field engineers are responsible for implementation of their aspects of the configuration management program. Individual implementing procedures such as those for Engineering Drawings, FCRs/FCNs, NCRs, Design Changes, Document Control, etc., contain specific roles and responsibilities for personnel involved in implementation of the CM process. The inspector reviewed a large sample of CM implementing procedures and was satisfied that roles and responsibilities have been acceptably assigned and documented for maintaining configuration of WTP.

Procedures and/or mechanisms for the Configuration Management area require controls

to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.

A number of controls have been developed for Configuration Management (CM) of WTP. These controls are implemented by individual procedures. For example, there are procedures in place for how to handle Engineering Drawings, Engineering Specifications, System Descriptions, Design Changes, Field Changes, Document Control, and Nonconformances, among others. These procedures are integrated together in that they all typically reference each other and rely on each other as links in a chain that maintain configuration control of WTP. The inspector reviewed a large number of these procedures, evaluated the controls that are implemented by them, and concluded that there is an acceptable CM program in place at WTP. Further, the inspector interviewed a number of engineers, both onsite and offsite, and reviewed samples of FCRs, FCNs, and NCRs, and inspected a sample of design drawings at several locations around the site. From this review, it appears that the CM program is being implemented at WTP.

One area of weakness detected in implementation of CM was in the area of FCNs. While no deficiencies were noted in the FCNs reviewed, knowledge of the FCN process and the constraints under which they are allowed was weak among the engineering personnel interviewed (both field engineers and design engineers). Most engineers interviewed had yet to deal with the FCN process. Knowledge of this process and its constraints by engineers who implement it is an important aspect of CM and will become increasingly important as the construction of WTP progresses and increases in sheer volume. The FCN process will be used more extensively and it is important that all engineers involved have a firm knowledge of it. Otherwise, a potential exists for losing configuration control of WTP. (CONF II-1.1)

Finally, Procedure 24590 WTP-GPP-CON-1201, *Construction Work Packages*, contains language that requires the cognizant field engineer responsible for a work activity to confirm readiness in several different areas prior to proceeding with work. He/she checks such things as material availability, any design changes, any changing conditions that would affect safety, and any other changes that would impact the work. The inspector confirmed through interviews that this requirement is adequately implemented at WTP.

Procedures and/or mechanisms for the Configuration Management area require that personnel who are assigned to the Configuration Management area have a satisfactory level of competence.

The WTP Configuration Management Plan requires Line Managers to identify training requirements for specific positions and work assignments to ensure that personnel are adequately trained and qualified to perform assigned work. This is largely accomplished through training profiles where all of the competencies that a WTP employee needs to do their job are captured; and various procedures, computer based training (CBT) modules and classroom training modules are listed for completion by them. Each worker has a training profile unique to their position description. Workers are not allowed to do their jobs in certain areas until they complete their required training in those areas. CM training includes a Configuration Management CBT module which the inspector reviewed. The inspector confirmed that design engineers and supervision/management for field engineers have taken this training. Individual field engineers

have not taken this course, but they have completed training in various procedures that implement CM. Three new CBT modules have been developed by the CM team responsible for the CM program. One is targeted to managers and supervisors, one is for personnel who deal with CM regularly, and one is for CM awareness training. These modules have been appropriately included into the training profiles for all project (design) engineering personnel as of February 5, 2003. They have 30 days to complete this training. However, these new training modules have yet to be addressed for Construction field personnel. The inspector interviewed Field Engineers who indicated that they were not familiar with the term “Configuration Management” or “Configuration Control”, yet they were knowledgeable of their responsibilities assigned in various procedures that implement CM. Because the concept of Configuration Management is vitally important to the construction and safe operation of WTP, the inspector recommends that Construction Management provide some kind of CM overview training for construction personnel who are involved in the day-to-day CM process, especially the field engineering staff. One of the newly developed CM CBT modules should suffice. (CONF II-1.2)

Procedures and/or mechanisms for the Configuration Management area require that within the Configuration Management area feedback and continuous improvement results.

There are various mechanisms whereby Engineering Management measures performance in various aspects of engineering, including CM, and provide feedback to their staff for continuous improvement. One of these is a periodic Functional Oversight Review conducted by the Systems Engineering Manager. One Functional Oversight Review has been conducted so far since their inception. This was in the area of acquisition services. Plans are in place to conduct one of these Functional Oversight Reviews every six weeks. The Systems Engineering Manager also conducted a 30% surveillance of all change control documents in November 2002, and 100% surveillance of them in December 2002. Results were reported back to Engineering senior management for dissemination to Engineering personnel. Also, a draft Engineering Process Assessment Plan and Schedule is currently being finalized which will mandate management assessments of various aspects of engineering, including CM. This is being developed with expertise external to WTP. Project Document Control (PDC) conducts weekly assessments of all design documents in all field locations to ensure that they contain the correct revisions; that Drawing Change Notices (DCNs), FCRs/FCNs and Specification Change Notices (SCNs) are properly accounted against them; and that all change control documents are in place and available in all field locations. On a monthly basis, the Resident Engineering Manager assigns cause codes to all FCRs, some of which indicate design problems, and then discusses his findings in monthly engineering management meetings to feedback these design problems to design engineers.

Some of these feedback mechanisms are formalized and some are not. For example, the process described above whereby the Resident Engineering Manager feeds back information on design problems identified in FCRs is noteworthy, but is not documented in any procedure. The Manager of Engineering stated that it is his intention to consolidate the various feedback mechanisms into the Process Assurance organization, develop a program description for them and have an implementing procedure in place by early March.

Finally, weaknesses in CM implementation have been identified by both internal and external reviews in recent months. Corrective actions have been applied in a number of areas. However, significant weaknesses are still being internally identified against some aspects of CM. For example, QA CAR 03-009 was just issued in January 2003 that discusses a programmatic breakdown in the control of documents by PDC. This is a significant CAR that documents repeat occurrences and requires a formal root cause analysis, which has yet to be initiated. The Manager of Engineering indicated that he is bringing in offsite BNI expertise to help develop an overall response plan and implement effective corrective action for this CAR. While this CAR is significant and warrants prompt management attention, it is an indication that the contractor is identifying their own problems and initiating corrective action. This is a good example of the feedback and continuous improvement process.

Conclusion:

A process exists to ensure that the integrity and capabilities of safety systems, safety features and other significant design features are maintained. There is an adequate process to ensure Configuration Management is included in the control of work. Within the Configuration Management area, feedback and continuous improvement processes exist, line managers are responsible for safety and clear roles and responsibilities have been established. With one exception noted, there is a satisfactory level of competence commensurate with assigned responsibilities. The criteria supporting this objective have been met, with two issues noted.

Issue(s):

CONF II-1.1: Design engineers and field engineers knowledge of the Field Change Notice process and its constraints is inadequate.

CONF II-1.2: Configuration management training developed for project engineering should be extended to field engineering personnel.

Noteworthy Practices:

None.

Inspector: <u> /s/ </u> Chris Sorensen	Team Leader: <u> /s/ </u> Larry Hinson
---	---

FUNCTIONAL AREA: Industrial Safety/ Industrial Hygiene	OBJECTIVE: IS/IH II-1	DATE: 2/12/03
---	------------------------------	----------------------

OBJECTIVE:

Within the Industrial Safety/Industrial Hygiene area (including radiation controls) the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the Industrial Safety/ Industrial Hygiene area, Line Managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE 11-2, CE 11-3, CE 11-4, CE 11-5, CE 11-6)

Criteria

1. Procedures and/or mechanisms for the Industrial Safety/Industrial Hygiene area (including radiation controls) require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the Industrial Safety/Industrial Hygiene (including radiation controls) area contain clear roles and responsibilities. The Industrial Safety/ Industrial Hygiene area is effectively integrated with Line Support Managers to ensure that Line Managers are responsible for safety.
3. Procedures and/or mechanisms for the Industrial Safety/ Industrial Hygiene area (including radiation controls) require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the Industrial Safety/Industrial Hygiene area (including radiation controls) require that personnel who are assigned to the Industrial Safety/Industrial Hygiene area have a satisfactory level of competence.
5. Procedures and/or mechanisms for the Industrial Safety/ Industrial Hygiene area (including radiation controls) require that within the Industrial Safety/Industrial Hygiene area feedback and continuous improvement results.

APPROACH:

Records Review:

- Memorandum of Agreement, No. 091001-01, Emergency Response Services, dated 10/01/2002
- 24590-WTP-PL-ESH-02-008, October 30, 2002, *Integrated Safety Management System*

(ISMS) Desk Reference

- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, January 30, 2003, *Integrated Safety Management System Description*
- Bechtel National Inc., Hanford RPP/WTP, Environmental, Safety, and Health Program Assessment, September 26, 2002
- Safety Task Analysis Risk Checklist, Rock Drilling, December 17, 2002
- Safety Task Analysis Risk Checklist, CS-Clean up & Support, January 14, 2003
- Safety Task Analysis Risk Checklist, Shearing, Bending, Rigging Rebar, Electrical Work, January 15, 2003
- Safety Task Analysis Risk Checklist, Set Dowels, January 8, 2003
- Safety Task Analysis Risk Checklist, C-5 Embedded Duct, January 13, 2003
- Safety Task Analysis Risk Checklist, Survey HLW, January 21, 2003
- Safety Task Analysis Risk Checklist, Rebar Curtains, January 21, 2003
- Safety Task Analysis Risk Checklist, Survey HLW, January 20, 2003
- Safety Task Analysis Risk Checklist, Segregating Hardware, January 16, 2003
- Safety Task Analysis Risk Checklist, Segregating Hardware, January 15, 2003
- Safety Task Analysis Risk Checklist, General Clean-up & Support, January 20, 2003
- Safety Task Analysis Risk Checklist, General Clean-up & Support, Pressure Washing & Sand Blasting, January 20, 2003
- Safety Task Analysis Risk Checklist, Clean-up & Support, January 21, 2003
- Safety Task Analysis Risk Checklist, Remove Crane Mats and Blocks, January 9, 2003
- Safety Task Analysis Risk Checklist, Prep C-5 Duct MC #1, January 25, 2003
- 24590-WTP-GPP-SIND-013, November 4, 2002, *Hazardous Work Permit*
- 24590-WTP-GPP-SIND-008, November 7, 2002, *Lockout/Tagout*
- 24590-WTP-GPP-SIND-002, November 4, 2002, *STARRT/JHA*
- 24590-WTP-GPP-SIND-024, November 4, 2002, *General Safe Work Practices*
- 24590-WTP-GPP-CON-3105, December 3, 2002, *Installation/Removal of Temporary Facilities & Utilities*
- 24590-WTP-GPP-SIND-037, November 4, 2002, *Site Clearance*
- 24590-WTP-GPP-SIND-010, November 4, 2002, *Respirator Protection*
- 24590-WTP-GPP-SIND-036, November 4, 2002, *Air Surveillance Monitoring*
- 24590-WTP-GPP-SIND-014, November 4, 2002, *Hazard Communication*
- 24590-WTP-GPP-SIND-009, November 4, 2002, *Safety Watches*
- Sr. Health Physicist I, II, Job Description
- Sr. Industrial Hygienist I, II, Job Description
- Safety Engineer, Job Description
- Rigging Package/Critical Lift, LAW Tower Crane Slider, October 1, 2002

Interviews Conducted:

- Project Superintendent
- Area Superintendent – LAW
- Area Superintendent - BOF
- Marshalling Yard Safety Engineer
- BOF Sr. Safety Engineer
- Safety Assurance Manager

- Electrical Engineer
- Industrial Hygienist (2)
- Random interviews with construction craftsmen

Observations:

- LAW Plan-of-the-Day
- LAW morning stretch
- LAW STARRT Card meeting for carpenters daily work activities
- Construction Project general walkdown and inspection
- Inspection of BOF Area Projects
- Inspection of LAW work areas
- Inspection of an excavation project to place stormwater drains
- Setup of worker personal air monitoring surveillance
- Site Inspection with the Industrial Hygienist(s)
- SETO weekly meeting
- Weekly Senior Manager's Safety Inspection
- Electrical tie-ins for the HLW tower crane
- Lockout/Tagout Training

Discussion of Results:

The execution of this CRAD included many interviews, field observations, and document reviews. For the sake of brevity, only the more significant activities that support the conclusions of this review will be discussed.

Included in this CRAD was the responsibility for assessing radiation controls at the project site. From the beginning of construction activities, radiation monitoring has occurred to ensure that proper radiation controls would be implemented. To date, no radiation sources have been identified at the site and there is no need for any radiation controls. The project has excavated down to the farthest depth that it will need to go and there is a high degree of confidence that there will be no radcon issues until hot operations. A radcon support group periodically does routine sampling to confirm that conditions have not changed.

Procedures and/or mechanisms for the Industrial Safety/Industrial Hygiene area (including radiation controls) require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.

Procedures and mechanisms for the Industrial Safety and Industrial Hygiene areas have adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.

Construction personnel have been trained to anticipate, recognize, evaluate, and respond to industrial safety and hygiene safety hazards relative to specific job tasks. Industrial safety maintains a presence in field operations by having a safety engineer working directly with the Construction Area Superintendent(s).

A review of Excavation Permits for proper planning and hazards identification was performed. The procedure for excavations requires that all of the underground interferences be identified and located. If the excavation will be in close proximity to potentially hazardous utilities (e.g. energized conduits, gas lines, etc.) then the permit requires that these must be locked out or made safe. The Area Safety Engineer is included in the review and approval of the Excavation Permit and does so prior to any work being done.

The Industrial Hygienist has programs in place for performing occupational health hazards assessments of processes, materials, tasks or equipment where there is a potential for unacceptable risk to employees from chemical, physical or biological agents.

Exposure assessment is an essential part of the ISMS process and the site has the involvement of the Field Industrial Hygienist(s). Exposure assessments are integrated with work planning activities to ensure that potential exposures are addressed in JHA and STARRT programs.

The industrial hygiene equipment is properly stored and maintained. Calibration and inspection tags were reviewed and no discrepancies were noted. The Field Industrial Hygienist(s) were very knowledgeable about their equipment and how it is used in the field. No deficiencies or concerns were noted.

Job Hazards Analyses were reviewed for completeness and the ability to provide guidance for performing work to enhance the safety aspects of tasks/procedures. No deficiencies or concerns were noted.

Walkdowns of the facilities were performed and an OSHA type surveillance conducted for program implementation. Appropriate industrial safety/hygiene related equipment is supplied, maintained, and reviewed to ensure the proper protection is provided to personnel.

Procedures and/or mechanisms for the Industrial Safety/Industrial Hygiene (including radiation controls) area contain clear roles and responsibilities. The Industrial Safety/Industrial Hygiene area is effectively integrated with line support managers to ensure that line managers are responsible for safety.

Roles and responsibilities for the IS/IH staff to support line managers is detailed in WTP safety procedures. Safety and Health personnel understand their roles and responsibilities for properly supporting construction activities. Qualified personnel for support of Industrial Safety and Industrial Hygiene programs have been assigned and personnel resources are adequate.

Procedures and/or mechanisms for the Industrial Safety/Industrial Hygiene area (including radiation controls) require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.

Safety controls are implemented wherever possible and as allowed by the specific job task. Engineered controls are used where possible, but due to the constant changing of the job tasks and hazards, there is strong reliance on personal protective equipment (PPE).

Employees are responsible for wearing the required PPE, as specified by site procedures, job-site safety rules, work control documents/permits, and as otherwise stated at the construction site. They are also responsible for reporting to their supervisor any observations where the assigned PPE does not or will not provide the appropriate safety protection based on the hazards of the work they perform.

During this review there was only one instance observed where a craftsman was not wearing the proper PPE. This situation was noticed by a Superintendent and immediately corrected. The employee was very receptive and non-confrontational to the correction and apologized for his oversight. The wearing and proper use of PPE by everyone on the construction site is commendable. (IS/IH II-1.2)

Another mechanism for ensuring required controls are implemented is the use of JHA(s) and the STARRT Card(s). The need for a JHA is determined by the work to be performed and by the Construction Management team. The JHA is included and retained as part of a work plan or work package. The requirements of the JHA are incorporated into the STARRT card and the hazardous work permits, if applicable, as well as project/facility specific Safety Assurance plans, as appropriate.

Line Managers take responsibility for safety through various process such as the STARRT Card and JHA. Superintendents/Supervisors are responsible for implementing the STARRT process with respect to specific tasks assigned to craftsmen on a daily basis. Supervisors discuss the hazards of the project/facility with their employees to compile information necessary to complete the STARRT Card. Upon completion of the STARRT Card, supervisors review the requirements of the card with the employees. The employees performing the work and supervisor sign the card.

Safety Assurance representatives may initiate a JHA. However, the Responsible Superintendent will implement the JHA, and the cognizant field engineer(s) will be included in the development of each JHA.

IH continuously takes sound level surveys of the areas and full shift-noise dosimetry sampling of the construction crafts as another means for implementing controls. As a result of the dosimetry sampling, the construction craft are being placed into a Hearing Conservation Program.

Routine air sampling for hazards is performed for specific job tasks as required. Air sampling for dust, silica, and welding fumes, are routinely taken. Engineering controls, work practices and personnel protective equipment are implemented or adjusted as a result of air sampling.

Safety Procedures for handling chemicals, responding to chemical spills, inspection and emergency activation of safety showers were reviewed for content and completeness. No deficiencies or concerns were noted.

A weekly facility inspection performed by the Senior Management Team was performed and attended by the Site Manager, General Superintendent, Craftsmen, and the Area Safety Engineer. Minor deficiencies are corrected on the spot; others are transmitted to facility management for correction and tracked to closure.

Procedures and/or mechanisms for the Industrial Safety/Industrial Hygiene area (including radiation controls) require that personnel who are assigned to the Industrial Safety/ Industrial Hygiene area have a satisfactory level of competence.

The Industrial Hygienist(s) was interviewed for knowledge, job function, and responsibilities. Knowledge of the process was discussed, as well as any special considerations required of IH.

Qualified personnel for support of IS/IH programs have been assigned, and IS/IH resources are adequate. The role of personnel in IS/IH is defined in the procedures for the safety and health programs. Industrial safety maintains a presence in field operations by having a safety engineer working directly with operations.

During walkdowns of the areas with the Safety Engineers there were several fire protection deficiencies noted. Construction has progressed to an extent that more and more facilities are being added and existing ones modified from their original intent. The day-to-day changes are to such an extent that often fire protection code violations would go unnoticed by typical Safety Engineers. At the present, a Fire Protection Engineer would only be asked to provide assistance for known hazards or some scheduled review. This leaves a gap or a period of time when the site fire protection posture is weak and vulnerable. The addition of a Fire Protection Engineer to assist with site activities would help strengthen the Safety and Health Organization (IS/IH.II-1.1).

Procedures and/or mechanisms for the Industrial Safety/Industrial Hygiene area (including radiation controls) require that within the Industrial Safety/Industrial Hygiene area feedback and continuous improvement results.

Safety Task Analysis Risk Reduction Talk (STARRT) is a process that utilizes employees to identify and resolve safety and health hazards associated with a task prior to it being performed. STARRT Cards are collected from the job site by the supervisor and forwarded to the Safety Assurance Office at the end of each shift or completion of the work task for their review of area wide improvement items or other corrective actions.

The WTP uses a Behavior Based Safety (BBS) observer program that reduces injuries by involving the craft in creating a safe work environment through behavioral observation, education, and increased awareness. The BBS program receives support from the Safety Assurance Organization and is responsible for numerous safety improvements.

The involvement of the workers by the BBS, JHA, and STARRT programs to take responsibility for their personal safety has instilled a very strong safety culture in the construction workforce. Supervisors and craftsmen that were interviewed always had a positive attitude regarding safety and were receptive to new ideas and improvement items. The construction site has developed a very strong safety culture that will ensure that accidents are minimized or prevented altogether. See MAN II-1.1.

Additional information on lessons learned and feedback is discussed in the Management CRAD MAN I-3 and MAN II-2.

Conclusion:

Within the Industrial Safety/Industrial Hygiene area, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Line Managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence.

The criteria for this objective have been met.

Issue(s):

IS/IH II-1.1: A Fire Protection Engineer should be added to the Safety and Health Organization to help strengthen site operations.

Noteworthy Practices:

IS/IH II-1.2: PPE is consistently worn and properly utilized by the construction workforce.

Inspector: _____ Glenn M. Morton, P.E.	Team Leader: _____ Larry Hinson
---	------------------------------------

FUNCTIONAL AREA: Quality	OBJECTIVE: QA II-1	DATE: 2/12/03
------------------------------------	---------------------------	----------------------

OBJECTIVE:

Within the Quality Assurance area the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the Quality Assurance area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE 11-2, CE 11-3, CE 11-4, CE 11-5, CE 11-6)

Criteria

1. Procedures and/or mechanisms for the Quality Assurance area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the Quality Assurance area contain clear roles and responsibilities. The Quality Assurance area is effectively integrated with line support managers to ensure line managers are responsible for safety.
3. Procedures and/or mechanisms for the Quality Assurance area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the Quality Assurance area require that personnel who are assigned to the Quality Assurance area have a satisfactory level of competence.
5. Procedures and/or mechanisms for feedback and continuous improvement in the area of Quality Assurance have been satisfactorily implemented and have produced desirable results.

APPROACH:

Records Review:

- 24590-WTP-GPP-QA-201, *Corrective Action*
- 24590-WTP-GPP-CON-1101, *Site Organization*
- 24590-WTP-GPP-QA-601, *Quality Assurance Surveillance*
- 24590-WTP-CAR-QA-03-064, *CAR (Corrective Action Report) 24590-WTP-CAR-QA-02-140 Follow-up*
- 24590-WTP-CAR-QA-02-266, *CAR 24590-WTP-CAR-QA-01-005 Follow-up*
- 24590-WTP-SV-QA-02-272, *Review of the Plant Item List*
- 24590-WTP-SV-QA-03-063, *Concerns Electronically Obtaining Safety Requirements Documents (SRD)*
- 24590-WTP-SV-QA-02-639, *C5 Duct Rough Weld ALARA Design Review – DOE Office of*

Safety Regulation (OSR) Inspection IR-02-008 Follow-up

- 24590-WTP-SV-QA-03-012, *Review of InTools Against Other Project Documents*
- 24590-WTP-SV-QA-03-059, *Review of Quality Action List*
- 24590-WTP-SV-QA-03-013, *Batch Plant Placement HLW-5A*
- 24590-WTP-SV-QA-03-026, *Cold Joint LAW Basemat Placement*
- 24590-WTP-SV-QA-02-661, *Crane Use and Operation*
- 24590-WTP-SV-QA-03-028, *Data Entry and Process Monitoring (Field Project Document Control)*
- 24590-WTP-SV-QA-03-010, *Follow-up surveillance to 24590-WTP-SV-QA-02-399*
- 24590-WTP-SV-QA-03-009, *Follow-up to 24590-WTP-SV-QA-02-470*
- 24590-WTP-SV-QA-02-675, *Follow-up to surveillance 24590-WTP-SV-QA-02-577*
- 24590-WTP-SV-QA-02-676, *Follow-up to surveillance 24590-WTP-SV-QA-02-552*
- CAR 24590-WTP-CAR-QA-02-095, *Numerous errors in calculations*
- 24590-WTP-ISMSD-ESH-01-001, Rev. 1, *WTP Project Integrated Safety Management System Description (1/30/03)*
- DOE G 414.1-2, *Quality Management System Guide*
- DOE O 414.1A, *Quality Assurance*
- 10 CFR 830.120, *Quality Assurance Requirements*
- 24590-WTP-GPP-QA-204, *Quality Trending*
- 24590-WTP-GPP-QA-501, *Corrective Action*
- 24590-WTP-GPP-QA-501B, *Independent Assessment (Audit)*
- 24590-WTP-GPP-QA-101, *Price Anderson Amendments Act Compliance and Reporting*
- 24590-WTP-QAM-QA-01-001, Rev. 3, *Quality Assurance Manual*
- 24590-WTP-IAR-QA-02-008, *Audit Report of Field Engineering*
- 24590-WTP-SV-QA-03-059, *Surveillance Report: Review of Engineering Quality Action List*
- 24590-WTP-GPP-CON-7101, Rev 1, *Construction Quality Control Program*
- 24590-WTP-IAR-QA-02-008, Rev. 0, *Field Engineering (Audit)*
- RPP/WTP QAM – 2002 *Annual Quality Assurance Program Evaluation*
- 24590-WTP-CAR-QA-02-095, Rev. 0, *Closure Verification for 24590-WTP-CAR-QA-01-038*
- RPP/WTP Record of Lead Auditor Qualification
- 24590-WTP-CAR-QA-03-059, *Review of Engineering Quality Action List*
- OSR Inspection Report IR-02-007
- OSR Inspection Report IR-02-008
- OSR Inspection Report IR-02-009
- OSR Inspection Report IR-02-010
- DOE Inspectors Deficiency Report Log for Third Quarter 2002
- RPP-WTP Quarterly QA Performance Indicators Third Quarter CY 2002
- RPP-WTP Quality Assurance Internal Audit Schedule
- Price-Anderson Amendments Act Review Board Meeting minutes for January 28, 2002
- Price-Anderson Amendments Act Review Board Meeting minutes for March 28, 2002
- Price-Anderson Amendments Act Review Board Meeting minutes for May 29, 2002
- Price-Anderson Amendments Act Review Board Meeting minutes for June 17, 2002
- Price-Anderson Amendments Act Review Board Meeting minutes for August 13, 2002
- Price-Anderson Amendments Act Review Board Meeting minutes for October 28, 2002

- Price-Anderson Amendments Act Review Board Meeting minutes for December 12, 2002

Interviews Conducted:

- Field Engineering Manager
- Quality Control Manager
- Senior Quality Engineer
- Quality Assurance Manager
- BOF Area Field Engineers
- PT Area Superintendent
- Area QA Representatives
- Senior Quality Engineer
- QA Programs Manager
- PAAA Coordinator
- Welding QCE (Lead)
- Electrical QCE
- Civil QCE (Lead)

Discussion of Results:

Procedures and/or mechanisms for the Quality Assurance area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.

A review of Quality Assurance (QA) procedures revealed that adequate hazard identification, evaluation, and controls development processes are specified in the BNI QA procedures. The Quality Assurance Manual (QAM) requires the integration of nuclear and industrial safety, quality, and environmental protection into all work. The QAM requires the identification of hazards and development of hazard controls. Annual reviews of the QA program are required, and any necessary changes are incorporated to improve the QA program.

Procedures and/or mechanisms for the Quality Assurance area contain clear roles and responsibilities. The Quality Assurance area is effectively integrated with line support managers to ensure line managers are responsible for safety.

With the exception of two groups, the roles and responsibilities for QA are well defined and understood. The QAM and other QA implementing procedures adequately define the roles and responsibilities for QA personnel, except for the Area QA Representatives and Quality Control Engineers.

The roles and responsibilities of the Area QA Representatives have not been formalized or approved and there are significant differences between the Representatives in their descriptions of their roles and responsibilities. Other site QA personnel could not define roles and responsibilities of the Area QA Representatives. (QA II-1.1)

The roles and responsibilities for the Quality Control Engineers (QCE) are not specifically defined in the Construction Quality Control Program procedure (24590-WTP-GPP-CON-7101). During interviews the QCEs stated that their roles and responsibilities were not listed in the

responsibilities section (3.2) but were scattered throughout the 7101 document and in other procedures. However, when asked to highlight their roles and responsibilities in the 7101 procedure they were unable to find them all. When the other documents in which the QCEs stated their roles and responsibilities were addressed were brought up on the computer, the documents listed only a few actions for the QCEs that related to the work being accomplished by the document. (QA II-1.1)

“Clear roles and responsibilities” is a guiding principle of ISMS; it is vital to ensure that personnel know their project responsibilities and enable management to ensure that all aspects of the project are adequately covered.

The QAM clearly stated that line managers are responsible for safety. The QA Manager is responsible for ensuring that an appropriate QA Program, the scope of which includes all systems and activities that affect safety and quality, is established and implemented. The QA Manager reviews project activities with the goal of identifying areas where changes could lead to improvements in safety and/or quality. Evidence was found to indicate that the QA organization is adequately integrated with line management.

Procedures and/or mechanisms for the Quality Assurance area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.

The QAM states that the QA program is a management system designed to promote the effective and efficient achievement of performance objectives through:

- Planning and documenting requirements for items, processes, and services.
- Controlling activities affecting the quality of those items, process, and services.
- Demonstrating adequacy of work and verifying the achievement of required quality.
- Analyzing and correcting conditions adverse to quality in a continuing process of self-improvement.
- Ensuring personnel have adequate training to ensure competence commensurate with responsibility.

These objectives were validated during the review, and with the exception of the findings listed below, the objectives are effectively integrated into the construction project.

Procedures and/or mechanisms for the Quality Assurance area require that personnel who are assigned to the Quality Assurance area have a satisfactory level of competence.

QAM Policy Q-02.2, *Personnel Training and Qualification*, identifies the responsibilities and requirements for the indoctrination, training, and qualification of personnel performing or managing activities affecting quality. It includes requirements for the training or indoctrination of personnel as to the technical objectives and requirements of the applicable codes and standards, and the applicable quality assurance requirements to be used on the project. It also requires that appropriate continuing training is provided to maintain proficiency.

Interviews, assessment and surveillance report reviews, and the training records reviewed clearly demonstrated that personnel assigned to the QA area have a satisfactory level of competence.

Procedures and/or mechanisms for feedback and continuous improvement in the area of Quality Assurance have been satisfactorily implemented and have produced desirable results.

The QA procedures clearly define and require feed back mechanisms including trending, self-assessments, assessments and surveillances, and corrective action effectiveness evaluations.

With one exception, field review of the feed back mechanisms showed that they have been effectively implemented and desirable results were demonstrated. Evidence was presented to demonstrate that QA is effectively planning their activities to cover the construction work. There was clear evidence that QA was adequately conducting assessments and surveillances when requested by management and other organizations. Evidence was found to demonstrate that the QA program was conducting follow up assessments and surveillances to ensure the identified problems had been adequately corrected.

One feedback mechanism needing improvement and expansion is feedback into the QA program to help focus the program and improve its effectiveness. Adequate evidence was not found that the QA program effectively gathered information, evaluated the information using a systematic approach, and then used the information to help direct the QA program to be more effective. That is, little evidence was found of a systematic process being used by QA to be proactive and identify issues before they affected quality or safety. Several people were attempting to perform this function in an informal way without a defined or consistent process. A more formalized process must be developed to identify issues before they affect quality or safety. (QA II-1.2)

Conclusion:

The QA program demonstrates adequate work planning, including an integrated analysis of hazards and the development and specification of necessary controls to oversee the construction site. There are adequate processes in place for the authorization and control of work. The QA program can be improved by better definition of some roles and responsibilities and feedback mechanisms. QA personnel at all levels demonstrated a satisfactory level of competence. The criteria for this objective were met, with two issues noted.

Issues:

QA II-1.1: Roles and responsibilities for the Area QA Representatives and the QC Inspectors need to be clearly defined.

QA II-1.2: Feed back into the QA process needs to be more formalized.

Noteworthy Practices:

None

Inspector: <u> /s/ </u> Brian Harkins	Team Leader: <u> /s/ </u> Larry Hinson
--	---

FUNCTIONAL AREA: Training	OBJECTIVE: TRA II-1	DATE: 2/12/03
--	----------------------------	----------------------

OBJECTIVE:

Within the Training (construction) area, the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the Training (construction) area, line managers are responsible for safety; clear roles and responsibilities are established; and there is a satisfactory level of competence. (CE 11-2, CE 11-3, CE 11-4, CE 11-5, CE 11-6)

Criteria

1. Procedures and/or mechanisms for the Training (construction) area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the Training (construction) area contain clear roles and responsibilities. The Training (construction) area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for the Training (construction) area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the Training (construction) area require that personnel who are assigned to the Training (construction) area have a satisfactory level of competence.
5. Procedures and/or mechanisms for feedback and continuous improvement in the area of Training (construction) have been satisfactorily implemented and have produced desirable results.

APPROACH:

Records Review:

- Training Package – Confined Space
- Training Package – Fall Protection
- 24590-WTP-GPG-CTRG-001, Rev 1: *Training Self Assessment*
- 24590-WTP-GPP-CON-1301: *Construction Training*
- 24590-WTP-GPP-CTRG-002: *Training*
- 24590-WTP-GPP-CTRG-004, Rev 0: *Training Program Description for WTP Instructors*
- WTP Delinquent Training List for 2/6/03
- PAAA Training List

- 24590-WTP-ISMSD-ESH-01-001, Rev 1: *WTP Project Integrated Safety Management System Description*
- Hanford Waste Treatment Plant Project Integrated Safety Management System Pre-Phase I/II Independent Assessment Final Report
- Training records for PAAA-0002-01 – PAAA Awareness Training
- Training records for 24590-WTP-CRM-TRA-520 – QA-PAAA – Overview
- Training records for 24590-WTP-CRM-TRA-521 – QA-PAAA – QA Policies relevant to acquisition process
- Training records for 24590-WTP-CRM-TRA-522 – QA-PAAA – The acquisition process & procedures
- Training records for 24590-WTP-CRM-TRA-523 – QA-PAAA – Lessons Learned
- 18 Training Profiles

Interviews Conducted:

- Training Manager
- Industrial Health and Safety Staff
- Industrial Health and Safety Training Coordinator
- Field Engineering Manager
- Quality Control Manager
- Senior Quality Engineer
- Quality Assurance Manager
- BOF Area Field Engineers
- PT Area Superintendent
- Area QA Representatives
- Senior Quality Engineer
- QA Programs Manager
- PAAA Coordinator
- Welding Quality Control Engineer (Lead)
- Electrical Quality Control Engineer
- Civil Quality Control Engineer (Lead)

Observations:

- Fall Protection Training
- Scaffolding Training

Discussion of Results:

Procedures and/or mechanisms for the Training (construction) area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.

A review of the training procedures revealed adequate hazard identification, evaluation, and controls development processes are specified in the BNI training procedures. Training course needs are determined by a combination of requirements (i.e. OSHA, procedures, etc.),

management, and line management evaluation of future work activities. Once a training need is identified, the training group develops the training materials using a defined process which includes; starting with Bechtel Corporate training packages, modifying the packages for site use, and review of the package by experts and personnel knowledgeable in the area being trained. Once a training package has been developed, instructors who have the necessary experience and training are identified to teach the course. The instructors review the training material as a final check of the quality of the training material. Periodic reviews of the training course, its associated material, and work activities are conducted and any necessary changes are incorporated to improve the training.

Procedures and/or mechanisms for the Training (construction) area contain clear roles and responsibilities. The Training (construction) area is effectively integrated with line support managers to ensure that line managers are responsible for safety.

Roles and responsibilities for construction training are clearly specified in the Construction Training procedures. Training course needs are determined by a combination of requirements (i.e. OSHA, procedures, etc.), management, and line management evaluation of future work activities. Feed back from line management to training is provided to ensure that the training program is properly training personnel to perform their assigned tasks. Periodic reviews of the training course, its associated material, and the work activities are conducted and any necessary changes are incorporated to improve the training. Line Managers are responsible to ensure that their personnel are properly trained and qualified and that additional training is provided to personnel to adapt to changes in technology, methods, or job responsibilities.

Procedures and/or mechanisms for the Training (construction) area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.

Training procedures include controls to prevent personnel from doing work they are not trained or qualified to do.

For non-manual personnel, the training procedures require individuals who have not completed their training to be supervised by a qualified and trained manager or supervisor and all work products to be reviewed and approved by a qualified individual. Personnel who lapse on their training beyond the 30 day deadline (as shown on their training profile) are required to be removed from the Construction Qualified Individuals list. Only personnel who have completed the training requirements and are on the Construction Qualified Individuals list are allowed to work independently and to sign documents. Line Managers are responsible to ensure that untrained or unqualified personnel are supervised and all work products are reviewed and approved by a qualified individual.

Manual (craft) personnel are required to be qualified for their position when they are hired. Manual personnel are assigned specific job designators by their supervisors. The job designators are used by training to determine what training is necessary for their work activities and which procedures they must read before they can perform their tasks. Outstanding training and required reading show up on the workers training profile. Each supervisor is responsible to ensure that all of their workers are trained and qualified. Supervisors are required to periodically check their

personnel's training profile and ensure that all outstanding training and required reading is complete.

A search of the construction site's training database showed that of the 1500 people listed in the database, 25 non-manual personnel and 142 manual personnel have exceeded the 30 day deadline for completing their training or required reading. Samplings of the list of personnel who are delinquent for training or required reading found no personnel who were performing unsupervised work or signing documents and that the non-manual personnel had been removed from the Construction Qualified Individuals list.

Procedures and/or mechanisms for the Training (construction) area require that personnel who are assigned to the Training (construction) area have a satisfactory level of competence.

Procedures require personnel assigned to the construction site to have the required skills, knowledge, and abilities to do their assigned tasks safely. Formal education, apprenticeship programs, orientation training, and task specific training are used to ensure personnel have an adequate level of competence. Most training classes required some testing to demonstrate that the training has been successful. Some training and qualification programs require the satisfactory demonstration of competence for the person to become qualified.

Procedures and/or mechanisms for feedback and continuous improvement in the area of Training (construction) have been satisfactorily implemented and have produced desirable results.

Feedback mechanisms found in the procedures and in use include course evaluation, peer review, line management reviews of training needs, and self assessments. Evidence was presented to conclude that the feed back mechanisms are satisfactorily implemented and have produced desirable results.

Conclusion:

The review found adequate evidence that within the Training (construction) area, the planning of work includes an integrated analysis of hazards and the development and specification of necessary controls. There are adequate process for the authorization and control of the training program. Feedback and continuous improvement process to improve the quality of the training courses was evident. Line managers are responsible for safety, and clear roles and responsibilities are established. A satisfactory level of competence was demonstrated by the personnel interviewed. The criteria supporting this objective were met.

Issue(s):

None.

Noteworthy Practices:

None.

Inspector: <u> /s/ </u> Brian Harkins	Team Leader: <u> /s/ </u> Larry Hinson
--	---

VERIFICATION REVIEW PLAN

River Protection Project

Waste Treatment Plant

(RPP-WTP)

INTEGRATED SAFETY MANAGEMENT SYSTEM (ISMS)

PHASE I AND II VERIFICATION REVIEW PLAN



Office of River Protection

Approved by: Signed

Date:

Larry Hinson
Team Leader

TABLE of CONTENTS

Acronyms	1
Introduction	2
Purpose.....	2
Scope	3
Prerequisites	3
Approach	4
Core Expectations	4
Criteria and Review Approach Documents (CRADs)	4
Sequence of Activities	5
Process.....	6
Team Organization and Focus.....	7
Evaluation Criteria	9
Review Team Preparation.....	9
Site Coordination and Support.....	10
Schedule	10
Attachment 1 - Team Leader Appointment Memorandum.....	11
Attachment 2 - Team Member Assignments and Biographies	14
Attachment 3 - Criteria Review and Approach Documents (CRADs)	24
Attachment 4 - Qualification Summary Form	67
Attachment 5 - Verification Review Final Report Outline	69
Attachment 6 - ISMSV ASSESSMENT FORM (Form 1)	71

Acronyms

BBC	Business, Budget & Contracts
BNI	Bechtel National, Inc.
CFR	Code of Federal Regulations
CONF	Configuration Management
CRAD	Criteria and Review Approach Document
DEAR	Department of Energy Acquisition Regulations
DOE	U.S. Department of Energy
ES&H	Environment, Safety, and Health
HAZ	Hazards Identification and Standard Selection
IS/IH	Industrial Safety/Industrial Hygiene
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
ISMSV	Integrated Safety Management System Verification
MAN	Management
OPS	Operations
ORP	DOE, Office of River Protection
OSR	DOE, ORP, Office of Safety Regulation
QA	Quality Assurance
RPP-WTP	River Protection Project – Waste Treatment Plant
SME	Subject Matter Expert
TRA	Training

Introduction

U. S. Department of Energy (DOE) Policy, DOE P 450.4, *Safety Management System Policy*, states, “The Department and Contractors must systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. This is to be accomplished through effective integration of safety management into all facets of work planning and execution. In other words, the overall management of safety functions and activities becomes an integral part of mission accomplishment.” Simply stated, it is the DOE’s policy that safety is integrated into all aspects of the management and operations of its facilities.

The DOE Acquisition Regulations (DEAR 48 CFR 970.5204-2 and -78) require contractors to manage and perform work in accordance with a documented, site-specific ISM. These ISMS requirements (48 CFR 970.5204-2 and -78) have been incorporated into Bechtel National, Inc. (BNI’s) contract (Contract No. DE-AC27-01RV14136). The contract requires BNI to submit their documented ISMS Description to the Office of River Protection (ORP) for approval. BNI submitted their ISMS Description 24590-WTP-ISMSD-ESH-01-001, Rev 0, to ORP on 18 September, 2002. ORP provided authorization for BNI to implement the BNI ISMS Description pending the results of this verification.

The Integrated Safety Management System Phase I Verification (ISMSV) is a review of the adequacy of the documented ISMS Description, including supporting Environmental, Safety, & Health (ES&H) system documents in fulfilling the requirements of the ISM Department of Energy Acquisition Regulations (DEAR) clauses, the DOE Directives contained in the contract, and the DOE ISM Policy. The ISMSV Phase II will review the implementation of the policies and procedures within the Construction Department. The ISMSV Phase I and Phase II will be performed in accordance with the protocol outlined in DOE HDBK 3027-99, *Integrated Safety Management Systems (ISMS) Verification Team Leader’s Handbook*.

The ORP Manager appointed Larry Hinson as Team Leader for the ISMSV Phase I & II in his memorandum dated December 18, 2002 (Attachment 1). The tasking memorandum specified the scope of the review and the requested deliverables. This Review Plan (RP) will define the review and the procedures that will be followed to conduct the review in support of the ORP Manager.

Purpose

The purpose of the Phase I ISMS Verification is to provide the ORP Site Manager with a recommendation regarding the approval of the BNI ISMS, based upon the requirements of 48 CFR 970.5204-2 and -78, DOE P 450.4, and DOE P 450.5. The purpose of Phase II verification is to assure that the procedures and mechanisms described within the System Document are implemented within the Construction Department sufficiently to assure DOE that the Safety Management System is working within BNI. A secondary purpose is to evaluate the role of ORP in support of BNI’s ISMS.

The final report of the BNI ISMSV will discuss the adequacy of the description document, supporting program and process documents, gap analysis, and the ISMS implementation within BNI, and recommend whether the ISMS Description Document should be approved by ORP. It will describe the strengths and opportunities for improvement in implementation of BNI's ISMS within the Construction Department. Additionally, the report will describe similar attributes regarding the ORP procedures and policies relative to the ORP River Protection Project (RPP) division.

Scope

The scope of the Phase I ISMS Verification shall be to verify that BNI has met the letter and intent of the above policy in BNI's ISMS Description, supporting processes, and documentation. This shall be accomplished through evaluation of whether the ISMS Description, including the supporting documentation and ES&H systems for the site, meets the requirements of 48 CFR 970.5204-2 and -78. To successfully accomplish this verification, the team will evaluate how the BNI procedures, policies, and manuals are implemented at the upper level of management. The evaluation will include detailed discussions with key management personnel. In assessing the adequacy of BNI's ISMS Description document, the ISMSV will consider self-assessments, gap analyses, corrective action plans, and ISM implementation plans. By reviewing supporting processes and mechanisms, documents, corrective actions and implementation plans, the ISMSV will be able to draw conclusions as to the adequacy of BNI's ISMS to be implemented. This approach will also assess the adequacy of the implementing and integrating mechanisms of ISMS. The scope of the review will include all nine Phase I Core Expectations.

The scope of the Phase II ISMS Verification shall be to verify effective implementation of ISMS at the Construction site. The Phase II verification is focused on implementation of integrated processes for accomplishing work safely. Through evaluation of work planning, control, feed back and improvement, the ISMSV will be able to evaluate effectiveness of implementation of the ISMS. The scope of the review will include all eight Phase II Core Expectations.

The ORP has worked with BNI in the establishment of their ISMS. In addition to reviewing BNI's ISMS documentation, processes, and mechanisms, the verification will also review the implementation of the ORP's responsibilities related to ISM. ORP's ISM-related functions, responsibilities, and authorities are delineated in the ORP Safety Management Functions, Responsibilities and Authorities Manual, DOE P 411.1, dated January 28, 1997; the River Protection Project (RPP) Project Management Plan, DOE/ORP-2000-06, Rev. 2, dated October 30, 2001; and the ORP Integrated Safety Management Plan, ORP M 450.4, Rev. 0, dated August 14, 2002.

Prerequisites

BNI has been instructed to provide access for ISMSV team members to all site facilities, ongoing projects and work activities, contractor personnel requested for interview, and pertinent documents and records. The ISMSV team requests formal presentations by appropriate BNI management and staff, to explain the ISMS Description document, its structure, and how it operates. BNI and ORP should include presentations on the supporting documentation and

processes, the ISMS and ES&H document hierarchy, the BNI and ORP organizations, and key roles, responsibilities, authorities, and interfaces related to ISMS implementation. These presentations should be made during the team's pre-ISMSV site visit.

Approach

The ISMS Verification Team will review the ISMS Description that has been submitted to the ORP Manager for approval. The ISMS Team will evaluate the description, supporting procedures and processes, manuals of practice, and implementation plans against the guiding principles and core functions defined in DOE P 450.4. Based on this assessment, the ISMS Team will draw conclusions and make recommendations to the ORP Manager as to whether the ISMS will achieve the overall objective of Integrated Safety Management, which is described as follows:

"The Department and contractors must systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the public, the worker, and the environment. This is to be accomplished through effective integration of safety management into all facets of work planning and execution. In other words, the overall management of safety functions and activities becomes an integral part of mission accomplishment."

In addition, implementation of the described system will be evaluated at all work activities within the Construction Division of BNI and the portion of the DOE staff that has line and staff responsibility for BNI operations. The ISMS verification will be conducted using a Phase I team to review the overall System and the design phase of the hazard identification and hazard control process and a Phase II team to observe the implementation of the System within the Construction Department of BNI.

Core Expectations

DOE HDBK 3027-99, *Integrated Safety Management Systems (ISMS) Verification Team Leader's Handbook*, presents core expectations derived from the guiding principles and core safety functions of the DOE's ISM policy. These core expectations shall be employed in this ISMSV. These core expectations are the basis for the objectives and criteria that will be used during this review.

Criteria and Review Approach Documents (CRADs)

This ISMSV will make use of the CRADs presented in Appendix 2 of DOE HDBK 3027-99, *Integrated Safety Management Systems (ISMS) Verification Team Leader's Handbook*. Those CRADs were developed to facilitate evaluation of an ISMS Description and supporting documentation and processes against the core expectations. The CRADs, which are provided in Attachment 3, are organized as follows:

Phase I

Business, Budget and Contracts	BBC
Department of Energy/ ORP/ RPP	DOE
Hazard Identification and Hazard Controls	HAZ
Management	MAN

Phase II

Department of Energy/ ORP/ RPP	DOE
Hazard Identification and Hazard Controls	HAZ
Management	MAN
Operations	OPS
Subject Matter Experts	SME
Configuration Management	CONF
Industrial Safety /Industrial Hygiene	IS/IH
Quality Assurance	QA
Training	TRA

Each CRAD provides the stated objectives for the applicable systems and processes, the criteria for determining if the systems and processes satisfy the objectives, the applicable categories of documents to be reviewed, personnel to be interviewed, and work activities to be observed in carrying out the verification. Team reviewers will complete a Form 1 which will document the results of the document reviews, interviews, and work observations; and which cite any resulting issues, strengths, or observations.

Sequence of Activities

The first step in the ISMS verification process is to provide training and interaction among the team members to ensure an adequate understanding of the DOE ISMS Policy expectations, the specific ISMS Description presented by BNI, and the plan and strategy for this review. The Team Leader will ensure the team has been trained on the ISMS Policy and is familiar with the Department of Energy Acquisition Regulations 970.5204-2, "Integration of Environment, Safety, and Health into Work Planning and Execution" and 970.5204-78, "Laws, Regulations, and DOE Orders". Briefings from BNI and DOE-ORP to the team to demonstrate BNI's ISMS will be conducted. As a final action of this initial effort, the team will complete preparation of the CRADs which will guide the review. The final CRADs will be attached as Attachment 3 of this Review Plan. The indoctrination period of about three days, including CRAD development, will be conducted at BNI two weeks prior to the start of the ISMS verification. The team member's assignments and biographies are included as Attachment 2 of the Review Plan.

The ISMS verification review will be conducted during a two-week period following preparation of the Review Plan, development of the CRADs, and completion of the team indoctrination. The review will consist of document reviews, interviews and observations of meetings, and other work related activities. Any additional actions that may be necessary to support review and assessment of the supporting program and process documents and the ISMS implementation will be identified as the review progresses.

During the second week of the verification review, the team members will complete their evaluation of the criteria in the individual CRADs that will support conclusions as to whether the individual objectives have been satisfied. The evaluation of the criteria will result from the presentations coupled with the verification conducted during the second week. An important input to all efforts will be the presentations and persuasive discussions by the individual responsible Managers who present and defend their ISMS at their individual levels of responsibility. The record of the evaluation will be the Form 1, Assessment Form. A Form 1 will be prepared for each Objective in the CRADs and will document the basis for the conclusions reached concerning the objective and criteria. Each Form 1 will conclude with a set of numbered issues or observations which will be rolled up to "Opportunities for Improvement" or "Noteworthy Practices" in the final report. Issues identified during the review of the individual CRAD which warrant the attention of the ORP Manager or senior BNI management will be clearly identified within the Form 1.

Each CRAD is intended to guide the evaluation of the adequacy of the ISMS implementation. Detailed instructions for completing the Assessment Form will be provided to the ISMS Team prior to and during the review.

A final report will be prepared which will describe the results of the ISMS verification. The report will provide a recommendation to the ORP Manager concerning approval of the BNI ISMS Description or approval with modifications via technical direction. The report will also provide the conclusions reached by the review team as to the adequacy of supporting program and process documents, and the ISMS implementation. The contents of the report are described in Attachment 5.

Process

The ISMSV will be conducted to ascertain adherence to, and application of, the core functions and guiding principles of ISM, using the criteria set forth in the CRADs. The team will evaluate the adequacy of the documented ISMS Description, supporting documents, and the implementing and integrating mechanisms of their ISMS. Emphasis will be placed on demonstrating how the ISMS integrates ES&H into business practices and how these practices are implemented at all organizational levels, from top levels of management down to the individual work or process level. The integration of line and support organization functions will be examined, and a review of the role of ORP in support of BNI's ISMS will be conducted.

The ISMS will be verified through evaluation of information gathered by review of ORP and BNI documents and records, interviews of personnel at the appropriate levels from management to staff, and observation of on-going management activities. Gaps in BNI's ISMS and other concerns with integration of the ISM principles and functions within BNI's ISMS will be

documented as issues at the individual CRAD level. Conversely, any ISMS process, mechanism, or document that demonstrates a sound application and a high degree of integration of the ISM principles in performing the ISM core functions will be documented as a strength at the individual CRAD level.

During the verification, the daily schedule will include an afternoon open team meeting. At this meeting, the team members will present emerging issues and concerns, and issues that they were able to resolve; discuss information to be passed on to other team members for follow-up; and request any assistance or advice they may need. The assigned points-of-contact/counterparts from BNI and ORP should meet in the morning with their respective sub-teams members and attend the daily team meeting. The purpose of the afternoon team meeting is to provide a forum for sharing information/observations amongst the team in order to better develop and understand any issues that result from the ISMSV's investigative activities, and inform the team leader, ORP, and BNI of all emerging issues.

Factual accuracy as to the content and conclusions of the verification report will be done concurrent with the development of the recommendation and finalization of the report. The final report outline is presented in Attachment 5.

The ISMSV Team Leader will present a briefing on the verification results to the ORP Site Manager and BNI management and staff. The exit briefing will identify any deficiencies, opportunities for improvement, and noteworthy practices found during the performance of the ISMSV. At this time, the final report of the ISMSV will also be submitted to the ORP Site Manager and to the BNI General Manager.

Team Organization and Focus

As noted, the ISMSV team is divided into two parts. The Phase I team will be reviewing the BNI safety management practices at the institutional and senior management levels, including design engineering. The Phase II team will focus on the Construction Department and the implementation of the mechanisms and practices of BNI. It is expected that the majority of the Phase I effort will be "in town" whereas the Phase II effort will be conducted at the work site. The DOE reviewer and the Subject Matter Expert (SME) reviewers will have activities and interviews at both sites.

The following are some specific attributes that will be reviewed during Phase I:

BBC will focus on the contracting issues between DOE and BNI. This includes sub-contracting and the flow down of responsibilities for subcontractors. The development of List A and List B as well as the change control process will be included within this area.

DOE will review the ORP-WTP project team, its responsibilities, and procedures used in the execution of those responsibilities. This includes Line Management responsibilities as well as the oversight and feedback mechanisms.

HAZ will monitor the Design engineering processes to determine the safety management implications of the processes to determine the hazards and the development of the controls of those hazards. The reviewer will include in that review observations of the design feedback process from Process Technology, Research and Technology, and from Construction. Additionally, three high-level programs will be reviewed: Environmental Protection, Fire Protection, and Chemical Management. These three programs are considered to be important to safety but would not be sufficiently developed to be included within the Phase II review.

MAN will have the responsibility to review the ISMS Description Document and monitor any coordinating committees that are in place or planned. Additionally, the management reviewer will investigate the roles, responsibilities, and authorities of Senior Line Management and Area Project Managers. A review of the feedback mechanisms will also be conducted; in particular, the feedback process planned for the ISMS will be noted.

The following are attributes that will be reviewed as a part of Phase II:

DOE will focus on the DOE oversight of the site construction activities as well as the DOE input to hazard controls and their oversight on work control.

HAZ will review the work planning process noting the development of the work documents from the design documents that have been provided. Additionally, the feedback from the field activities to the design process will be evaluated on its' impact on safety. Additionally, this reviewer will evaluate the Radiological Controls used in the work planning process.

MAN will review the safety roles, responsibilities, and accountabilities of Construction Department Line Management from the Construction Manager to the Lead Superintendents. This reviewer has the responsibility to review the feedback systems used by line management in the Construction Department. The interfaces of this feedback system with the systems of the other departments at the institutional level are of interest.

OPS will review all aspects of the construction operation from the Area Construction Superintendents down to the individual worker. This will include worker knowledge of the hazard controls, worker input to the development of controls, as well as worker feedback into better ways to improve the safety performance.

SME CONF will review the Configuration Management system. The focus will be in the discipline of the design system to ensure that the hazard controls developed during the design phase of the project will continue to exist and not be inadvertently deleted by follow-on activities.

SME IS/IH will review the IS/IH programs that are in place. Additionally, this reviewer will be responsible for reviewing the implementation of Radiation Controls requirements of the work site activities. The review of crane safety activities will fall under this reviewer.

SME QA will review the QA program from the institutional level to the activities at the work site.

SME TRA will be primarily responsible for the training conducted at the construction site and the training programs that are connected to that effort.

Evaluation Criteria

Execution of the CRADs and their associated review criteria evaluate the adequacy of the ISMS Description, and its associated documents and processes, to fulfill the application of the ISMS guiding principles and core safety functions across the business practices of BNI. Each ISMSV team member will assess their assigned areas of BNI's ISMS and determine where issues and strengths exist.

Once all team members' verification forms have been reviewed as appropriate, the team will bin issues and strengths against the core functions and guiding principles to define opportunities for improvement and noteworthy practices. Individual team members working with the Team Leader and the Senior Technical Advisor will identify and refine issues, opportunities for improvement, and noteworthy practices. For the purposes of this verification, the following definitions will be used to decide when an issue or strength qualifies as a deficiency, opportunity for improvement, or noteworthy practice.

Issue: The ISMS Description and supporting documentation does not include/address an ISMS element; or the ISMS mechanisms can not demonstrate in the documented processes and procedures how ES&H and applicable directives, policies, and requirements are integrated into its business practices.

Opportunity for Improvement: The ISMS Description and the documented processes or procedures do not adequately address the ISMS core safety functions and guiding principles, or integration of ES&H within its business practices needs strengthening to demonstrate effective integration of the ISMS mechanisms that address the core functions and guiding principles at the appropriate work or planning level. In general, a combination or series of issues that is binned or "rolled-up".

Noteworthy Practice: An exemplary process for integrating and illustrating an element of ISM that merits dissemination across the DOE complex as a positive lesson learned.

Review Team Preparation

Preparation is considered vital to producing a robust, credible verification. Team members are required to prepare for the ISMSV through the following:

1. Read
 - ISMS Phase I and Phase II Verification Plan
 - DOE P 450.4, *Safety Management System Policy*
 - DOE G 450.4-1B, *Integrated Safety Management System Guide, Volume 2*
 - DOE HDBK 3027-99, *Integrated Safety Management Systems (ISMS) Verification*

Team Leader's Handbook

- ORP's Integrated Safety Management Plan, ORP M 450.4
 - BNI's Integrated Safety Management System Description, 24590-WTP-ISMSD-ESH-01-001, Rev 0
2. Preparation of team member's biographies - Team members will complete and submit to the Team Leader Qualification Summaries (Attachment 4). The ISMSV Team Leader will review the qualification and training of team members prior to and during the pre-verification site visit. The biographies of the ISMSV team members (Attachment 2) will be submitted as part of this review plan.
 3. Attend any site specific orientation, site tour, and applicable safety training.

Site Coordination and Support

The ORP and the BNI staff will be available to assist the team and provide support as needed during the verification. Al Hawkins of ORP and William Gaydosh of BNI will be the principle points-of-contact for the ISMSV team. BNI and ORP should provide counterparts to each reviewer. These counterparts will coordinate interviews, gather requested documentation and records, assist with access to facilities, and aid in the factual accuracy review of the final verification report.

BNI will provide workspace, meeting rooms, computers, telephones, photocopy machines, and other office support for the ISMSV team. Access to, and copies of, the BNI ISMS and ES&H documentation will be provided.

Schedule

The ISMSV Team Leader, in conjunction with the ORP Site Manager and representatives of BNI, established the duration and the dates of the verification. The schedule for the Phase I ISMSV is as follows:

- Pre-verification site visit: January 13-17, 2003
- Phase I and Phase II ISMSV: February 3-13, 2003

Attachment 1 - Team Leader Appointment Memorandum

Attachment 2 - Team Member Assignments and Biographies

Team Member Assignments

Team Leader Larry Hinson

**Senior Technical
Advisor** Wayne Rickman

Phase I

BBC Jeff Short

DOE Terry Krietz

HAZ Tom Pestorius
 Steve Bertness

MAN Will Ortiz
 Michelle Durham

Phase II

DOE Terry Krietz

HAZ Chris Sorenson

MAN Mike Thomas

OPS Pat Burke

CONF Chris Sorenson

IS/IH Glenn Morton

QA Brian Harkins

TRA Brian Harkins

Team Member Biographies

Larry Hinson

Mr. Hinson (Team Leader) is a Facility Representative (FR) for DOE High Level Waste Operations Division at Savannah River Site (SR). Mr. Hinson has over 25 years of nuclear experience and is a fully qualified DOE Facility Representative. He is a graduate of the U. S. Naval Academy, has a Master of Engineering degree in Nuclear Engineering from the University of Virginia, and is a registered professional engineer in the state of Oregon. He served 8 years with the U. S. Navy as an Engineering Division Officer and Operations Officer on board nuclear powered submarines and as an instructor at a Navy Nuclear Prototype Training Facility. Mr. Hinson has 10 years commercial nuclear power experience as a Regulatory Compliance Engineer at an electric utility company and as a Startup Test Engineer for General Electric Company. He certified as a Senior Reactor Operator (SRO) for Boiling Water Reactors and was licensed by the U. S. Nuclear Regulatory Commission as SRO for Refueling Operations while at General Electric. Since joining DOE, Mr. Hinson has worked with the New Production Reactor Project and with High Level Waste Management at the Savannah River Site. He has worked on development of the Defense Waste Processing Facility (DWPF) Waste Qualification program and as a Facility Representative at DWPF and at F Tank Farm. He has served as a member of DOE Operational Readiness Review (ORR) Teams for startup of the West Valley Demonstration Project, the HB-Line Phase I facility, the Waste Isolation Pilot Plant (WIPP), and K-Area Material Storage Project. In addition, he was the Team Leader for the HB-Line Phase II facility ORR. He has served on Integrated Safety Management System (ISMS) Verification teams for WIPP and Wackenhut Services, Inc. at Savannah River, and has been designated as a team leader for ISMS Verification reviews. He served on the DOE Type B Accident Investigation Teams for the 1999 Plutonium Intake event at the FB-Line facility at SRS and the 2001 Property damage event at the Atlas facility at Los Alamos. He was the team leader responsible for DOE's review of the SR High Level Waste 10CFR830 Documented Safety Analysis and preparation of DOE's Safety Evaluation Report. His present position is the Senior Facility Representative at the F-Tank Farm facility at SRS.

Steve Bertness

Mr. Bertness is an Occupational Safety and Health Specialist for the Office of Program Management Support at the Hanford Site with special emphasis on nuclear safety for environmental restoration projects. He participated as a team member in the Fluor Daniel Hanford ISMS Phase I Verification as a subteam lead for the Spent Nuclear Fuels Project Phase I/II Verification, a subteam lead for the Plutonium Finishing Plant Phase I Verification and a subteam lead for the second Fluor Hanford Phase I Verification. Mr. Bertness also served as the Assistant Team Lead for the Environmental Restoration Contractor Phase I/II Verification. He also served as Fed oversight for the Facility Evaluation Board, Phase I/II validation of DynCorp.

Mr. Bertness earned a Bachelor of Science degree in 1989 in Safety Engineering from Indiana University of Pennsylvania, whose Safety Science Department holds an accreditation from the American Society of Safety Engineers. Mr. Bertness has served in his current position for the past 3 years. Previously, he was a Safety and Health Manager at DOE Headquarters for the Deputy Assistant Secretary for Environmental Restoration, with primary areas of involvement being nuclear safety, Integrated Safety Management, HAZWOPER, Occupational Safety and

Health Administration (OSHA) compliance, the OSHA Voluntary Protection Program, safety and health training and safety and health program development. Before accepting a position with DOE, Mr. Bertness was an Industrial Hygiene compliance officer for the Virginia Department of Labor, Occupational Safety and Health Administration, with inspection responsibilities in the Northern Virginia District. Previously, Mr. Bertness served as an industrial hygiene consultant for APEX Environmental in Rockville, Maryland.

Pat Burke

Mr. Burke is currently a senior engineer with the Department of Energy at the Savannah River Site (SRS) in Aiken, South Carolina. He is the Lead Program Manager for all site utility and infrastructure systems. Previously, he spent several years as a Senior DOE Facility Representative in the both the High Level Waste and Infrastructure Programs. He has participated in the Operational Readiness Review (ORR) for the In-Tank Precipitation (ITP) Facility and has conducted numerous safety and operational assessments throughout the Savannah River Site.

Prior to joining DOE, Mr. Burke spent over 15 years in the nuclear and commercial construction industries in field engineering and construction management. He spent four years at the Seabrook Nuclear Plant in Seabrook, New Hampshire during construction and six years in Washington, DC area building high-tech office facilities. He graduated from the University of New Hampshire in 1980 with a degree in Civil/Structural Engineering. He has spent over 20 years in the Naval Reserve Construction Force with direct responsibility for Battalion Safety and Construction Operations. He is currently a Commander in the Joint Task Forces of the US Pacific Command.

Michelle Durham

Michelle Durham received a Bachelors Degree in Industrial Engineering from the University of Pittsburgh and a Masters Degree in Engineering Management from George Washington University. She is currently a National Nuclear Security Administration Representative (FR) at the Y-12 Site Office and has a total of 10 years experience with the Department of Energy, five of which were spent in the Savannah River Operations Office, High Level Waste Organization as a FR. Prior to becoming a FR, Ms. Durham served as a Program Manager at DOE Headquarters for the SR HLW program. As a Program Manager, Ms. Durham was responsible for ensuring the site established cost, schedule and technical baselines that supported safe operations. Activities included preparing budget justifications, reviewing operations plans and safety basis documents. Ms. Durham also has five years experience with the Department of the Navy where she served as an explosive testing manager, industrial engineer, environmental compliance coordinator, and resource planning engineer. Ms. Durham has additional management experience with an electrical component manufacturer.

Ms. Durham has been a Validation Team Leader for Start of Slurry operations in Tank 8, restart of the 2H evaporator after a shutdown for safety upgrades, and implementation of a new Authorization Basis in F-Tank Farm, all at Savannah River. She has been a team member on the ORR for Resumption of Enriched Uranium Reduction and Pour-Up operations at Y-12. At Savannah River she was a team member on H-Canyon Phase II Readiness Assessment.

Brian A. Harkins

Mr. Harkins obtained a Bachelors Degree in Mechanical Engineering at the University of Idaho, Moscow, Idaho, in 1990. He is currently a Facility Representative (FR) assigned to cover construction activities at the Waste Treatment Facility. Previously he was a FR at the Office of River Protection, Tank Farm Oversight Division, where he received the National Facility Representative of the Year Award for 2001. Before qualifying as a FR, he was responsible for assessing the Contractor's readiness activities related to facility startup (i.e. Operational Readiness Reviews and Readiness Activities) of Tank Farm construction projects. Mr. Harkins has led the DOE Readiness Assessment team for the start of pumping of Tank SY-101, led the Operations Safety Oversight Division Self Assessment, and participated as a team member in the Plutonium Finishing Plant ORR and two conduct of operation assessments. Mr. Harkins has approximately 16 years experience in construction project management.

Previously, Mr. Harkins was employed as an Engineer with the West Valley Nuclear Services where he was responsible for CO2 Decontamination system purchase, Segmented Gamma Scanner Upgrade, and Sludge and Resin Stabilization. While working as a Radiological Control Engineer at Puget Sound Naval Shipyard, he was responsible for activities in the radioactive waste processing and mixed waste processing areas.

Terry Krietz

Mr. Krietz is a Safety and Health Site Liaison for the Office of Safety and Engineering (EM-5). He has 23 years experience in the safety management field. Eleven of those years were spent developing DOE-wide worker safety and health policy and providing technical assistance to the DOE field elements. He earned Bachelor of Science degrees in Biology and Geo-Environmental studies at Shippensburg University.

Before coming to DOE, Mr. Krietz served as Safety Director at the Sierra Army Depot and the Senior Safety Manager for the U.S. Army Depot System Command. He completed the U.S. Army Materiel Command Safety Management Intern Program and technical training in the chemical, explosives, nuclear, and radiological areas. Mr. Krietz has served as lead, co-lead, or participant on over 40 comprehensive safety and health program evaluations of U.S. Army Depot System Command installations. He has also been accident investigation board chairman for fatality investigations at Anniston and Tobyhanna Army Depots. He has been the lead, co-lead, or participant on pre-operational surveys of toxic chemical weapon operations at Anniston, Blue-Grass, Pueblo, Tooele, and Umatilla Army Depots, and has been the lead for Army safety and health inspections of industrial, explosives and construction operations at U.S. Army Depots. With DOE, he has served as an evaluator for the DOE Voluntary Protection Program evaluations at Savannah River and INEEL and has been an evaluator for DOE EH/EM reviews of site safety and health programs. Mr. Krietz served as a team member on the CH2MHill Hanford Group ISMS review at the Office of River Protection Tank Farms.

Glenn Morton

Mr. Glenn Morton, P.E., is a Fire Protection Engineer with the Department of Energy Savannah River Site (DOE-SR) in the Safety Division. He holds a B.S. in Mechanical Engineering from the University of Tennessee and has completed graduate studies in Industrial Hygiene (IH) from

the University of South Carolina and similar courses in IH from the Medical University of South Carolina. He has 16 years experience in the fire protection and safety field, and is a registered Professional Engineer in Fire Protection. Mr. Morton spent the first 2 years of his career with the Tennessee Valley Authority (TVA) where he served as a fire protection engineer during the restart of Sequoyah Nuclear Plant, Units 1 and 2, after TVA had shut down its nuclear program due to safety concerns. His assignments included 10CFR50.59 Safety Evaluations, 10CFR50 Appendix R reviews and design of fire protection systems. Mr. Morton left TVA in 1989 to take a position as a fire protection engineer with Chas T. Main, Inc., a private A&E firm. His assignments included fire hazards analysis and design of fire protection systems for New York Power Authority and DOE Savannah River Operations Office. In 1991 he assumed a position with DOE, where he provided technical support for fire protection to the DOE Waste Operations and Technical Support Division. Currently, he is providing technical oversight for fire protection, safety, and industrial hygiene to the Assistant Manager for Health Safety and Technical Support. He is matrix to the DOE-SR line organizations, Assistant Manager for High Level Waste and Assistant Manager for National Security where his duties include technical oversight in the areas of safety and health. Mr. Morton served on the DOE-SR Operational Readiness Evaluations for FB-Line, E-Area Burial Vaults, and H-Canyon. He has also served as a team member of the DOE-SR Startup Validations Assessments for the In-Tank-Precipitation, Defense Waste Processing Facility and the Replacement High Level Waste Evaporator. He performed the industrial safety and hygiene review for the Integrated Safety Management System (ISMS) Phase II Assessment of FB-Line and the safety and health portions of the Hanford, Tank Waste Remediation System (TWRS) ISMS Phase I verification. He has performed the safety and health portions of the Operational Readiness Reviews (ORR) for Savannah River Site H-Canyon, HB-Line, and Tritium Facilities and on the ORR for the Waste Isolation Pilot Project (WIPP) and more recently the 2H Evaporator Cleaning. He was a member of the INEEL ISMS Phase I and Phase II, Parts I and II, Verification Team.

William Ortiz

Mr. Ortiz is presently working for DOE/NNSA at the Sandia Site Office in Albuquerque, New Mexico. He has worked for DOE for 14 years as a General Engineer, Federal Project Manager, and DOE Facility Representative. Currently, he is a fully qualified DOE Facility Representative for Construction, Maintenance, and Balance of Plant at Sandia National Laboratories (SNL).

At the Sandia Site Office he was the Federal Project Manager on two successful Sandia Projects. In January 2002, the SNL Rapid Reactivation Project achieved Critical Decision 4 in January 2002. In December 2000, the SNL Processing and Environmental Technologies Laboratory (PETL) Project achieved Critical Decision 4 and was selected a DOE OECM Program & Project Award Winner 2000.

At the DOE Site Office at the Thomas Jefferson National Accelerator Facility in Newport News, Virginia, Mr. Ortiz worked for nine years as a principal DOE technical contact for construction and maintenance activities. Mr. Ortiz supported DOE Project oversight and evaluation for the Continuous Electron Beam Accelerator Facility (CEBAF) Project (\$515M), Free Electron Laser Project (\$18M), and several In-House Energy Management and General Plant Projects (ranging from \$100K to \$1M). Mr. Ortiz worked with DOE, M&O contractor, and other Government representatives to develop and expedite the approval of operational readiness plans, safety documentation, and key institutional programs. Mr. Ortiz earned a B.S. in Mechanical

Engineering in 1989 at New Mexico State University, Las Cruces, NM.

Tom Pestorius

Mr. Tom Pestorius is CEO of H&P, Inc., an engineering services company providing services to the nuclear industry. He has 32 years of experience with the nuclear industry and government including management, policy, and marketing positions. He has experience as a Naval Officer aboard nuclear powered naval ships, managing projects for nuclear utility power plants, government assignments in Congress and the White House dealing with nuclear regulatory and appropriation issues and extensive experience with the Department of Energy nuclear facilities both in the field and at Headquarters. He has been on Operational Readiness Review (ORR) Teams for K Reactor, HB Line, RTF, DWPF, Bldg. 707 and 371 at RFETS, Pantex Stage Right, Pantex AT400A, F Canyon, FB Line, ITP, SRS Evaporators, TA-55 Cassini Project and the B696R Waste Facility at LLNL. He has been both a Team Leader and a Senior Safety Advisor on ORRs and ISM Assessments. He has been a Senior Mentor at the RFETS and at Los Alamos National Laboratory Plutonium Facilities (TA-55 and CMR) and at the Plutonium Facility at Lawrence Livermore National Laboratory (B332) and has testified before the DNFSB regarding these programs. He has participated in Integrated Safety Management (ISM) Assessments at the Defense Waste Processing Facility at Savannah River Site, the Waste Isolation Pilot Plant in Carlsbad New Mexico and at the LLNL. He has provided contractor support to the Advisory Committee for Nuclear Facility Safety (ACNFS), which reported to the Secretary of Energy and to the Director of the DOE Liaison Office to the Defense Nuclear Facility Safety Board (DNFSB). He has testified multiple times at public meetings before the DNFSB regarding ORR results and mentor activities. Mr. Pestorius is also a Past Senior Vice President of the American Society of Mechanical Engineers (ASME) and is the current Chairman of the ASME Committee on Finance and Investment.

Wayne Rickman

Mr. Rickman is presently CEO of the Rickman Group. He was employed as a Principal Analyst and Senior Vice President of Nuclear Operations for Sonalysts, Inc. for 10 years. He has had more than 30 years of operational experience in the Naval Nuclear Propulsion (submarine) Program, achieving the rank of Rear Admiral.

Mr. Rickman has participated in ISM reviews at Savannah River, Rocky Flats, Idaho Falls, LLNL, and Oak Ridge. He served as a Senior Advisor to a select Department of Energy training and qualification survey team in support of the implementation plan for DNFSB recommendation 92-7 and 93-3. Mr. Rickman has served as senior nuclear advisor for the ORRs for Building 707 at Rocky Flats, F-Canyon, FB-Line, Defense Waste Processing Facility, and the Replacement Tritium Facility at Savannah River Site (SR). Additionally, he served as a Senior Nuclear Advisor as well as a training and qualification technical expert for HB-Line at SR. During the ORR for Building 559 at Rocky Flats, Mr. Rickman participated as the training and management systems group leader. He was involved in the internal briefings within DOE and to the DNFSB and participated in the many public hearings concerning ORRs for those facilities. Additionally, Mr. Rickman was the technical director for the DOE certification program for "K" reactor operators as part of the "K" reactor restart program at SR.

While in the Navy, RADM Rickman was involved in the training and qualification of personnel in the Naval Nuclear Propulsion and the Naval Nuclear Weapons Programs. He served as commanding officer of two submarines, including a Trident submarine with the Navy's largest and newest submerged power reactor and the Trident C-4 weapons system. He also served as special assistant to the Director, Naval Nuclear Propulsion Program, where he was responsible for the selection, qualification, training, and assignment of personnel who supervise, operate, and maintain naval nuclear propulsion plants.

Jeff Short

Mr. Jeff Short received a Bachelors Degree in Accounting from Illinois State University in 1984. He recently had a lead role in re-negotiating the \$2 billion Tank Farm operations contract with CH2M Hill, Inc with ORP. The negotiations culminated in a contract modification signed on September 30, 2002, and the new business model and contract incentives developed are being used across the DOE weapons complex. Mr. Short currently supervises six professional staff accountants that are responsible for a diverse workload, including: supporting the annual financial statement audit, contractor financial oversight, pricing support, business advice, streamlining ORP procedures and training processes, and IG/GAO audit coordination. He also manages the interface with the Richland Operations Office (RL) for diverse services such as general accounting, property accounting, training, industrial relations, IRM (phones, pagers, computers) and travel.

As a warranted Contracting Officer, Mr. Short has negotiated and administered ORP's management and operating (M&O) contract valued in excess of \$2 billion. This experience included: resolving disputes, leading teams of technical and managerial professionals to settle issues, assigning contract administration tasks to staff, providing advice related to acquisition, business, and contract incentives to technical and managerial staff, preparing pre/post negotiation memoranda, writing contract clauses, preparing requests for deviations from

regulations, surveilling contractor purchasing activities, selecting contract types and carrying out solicitation/selection processes, disposition audit recommendations, and performing cost analysis.

Mr. Short has also served as a Senior Auditor for DOE's Richland Operations Office (RL) in which his responsibilities included: developing, evaluating and negotiating indirect cost allocation rates; reviewed and adjudicated Cost Accounting Standards issues, including recommending changes to M&O Contractor cost accumulation and allocation methodology; performed pre-award audits and cost/price analysis; conducted internal control audits of DOE and M&O Contractor programs; performed financial advisor role on source evaluation boards; orally presented audit findings to management; provided Cost Accounting Standards training to staff; instructed segments of courses included in DOE's financial management certification program; provided accounting and auditing guidance to DOE staff; developed audit plans and procedures; assigned work to and reviewed reports written by DOE staff; reviewed M&O contractor functional costs; and validated M&O contractor budget estimates.

Chris Sorensen

Mr. Chris Sorenson is currently the General Engineer for the Office of River Protection Tank Farm Engineering Team. He has a Bachelor of Science Degree in Engineering from the University of Washington. Mr. Sorenson was a Qualified Nuclear Shift Test Engineer on S5W Reactor Plants, Puget Sound Naval Shipyard, is Qualified as a NRC Resident Inspector and Senior Resident Inspector, and is Qualified in Nuclear Safety Systems, Technical Qualification Program for DOE Technical Personnel. He also has twenty three years experience in various naval, commercial, and DOE nuclear facilities

Mr. Sorenson is responsible for Startup/Restart Program and ISMS for the DOE Office of River Protection overseeing the tank farm contractor. He was Site Safety Representative at Hanford for DOE-HQ; conducted numerous assessments of activities in DOE nuclear facilities to ensure compliance with DOE requirements; was a DOE Project Engineer for FFTF and dealt with legacy sodium issues around the site. Mr. Sorenson was a NRC Senior Resident Inspector at Columbia Generating Station, dealing with inspection and enforcement of facility license and design basis and supervised the activities of one resident inspector. He was NRC Resident Inspector at Columbia Generating Station and conducted numerous inspections of licensee activities to ensure compliance with NRC requirements. He was NRC Project Inspector for Palo Verde Nuclear Generating Station; Nuclear Shift Test Engineer for reactor plants on various submarines at Puget Sound Naval Shipyard; provided work isolation for all aspects of maintenance on submarine reactor plants; conducted extensive testing of all aspects of a submarine reactor plant during and after overhaul; supervised the activities of two assistants; and was Assistant Shift Test Engineer for reactor plants on various submarines at Puget Sound Naval Shipyard.

Mike Thomas

Mike Thomas is presently the Senior Facility Representative for the Spent Fuel and K Area Material Storage facilities at the Savannah River Site. He was the Senior Facility Representative at the Defense Waste Processing Facility during construction, commissioning, start-up testing, and initial start-up and operations.

Mr. Thomas participated in the Operational Readiness Review for the West Valley Demonstration Project start-up as the Operations Subject Matter Expert. He also participated in a type B investigation at the Savannah River Site H Canyon as the board member reviewing operations.

Mr. Thomas served twenty years in the Naval Nuclear Propulsion Program. He served onboard several submarines in a variety of assignments including Reactor Operator, Engineering Watch Supervisor, Main Propulsion Assistant, and Engineer Officer for a refueling overhaul. Additionally, he served as the Staff Training Officer at the S7G Naval Nuclear Propulsion Training Unit.

Attachment 3 - Criteria Review and Approach Documents (CRADs)

Criteria Review and Approach Documents (CRAD)

Phase I

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD) ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Business, Budget, and Contracts (BBC)	OBJECTIVE NO.: 1	DATE:
---	-------------------------	--------------

OBJECTIVE: DOE and contractor procedures ensure that missions are translated into work, expectations are set, tasks are identified and prioritized, and resources are allocated. (CE I-2, CE I-6, CE I-7, CE I-9)

CRITERIA

1. DOE guidance for translating mission into work includes delineating its plan of work. This means the scope, schedule, and funding allocations for each fiscal year. (FRAM 9.2.1)
2. DOE guidance for setting expectations for the contractor is established through contracts and regulations. These contracts and regulations provide guidance on expected performance, set goals and priorities, and allocate resources. (FRAM 9.2.2)
3. DOE roles and responsibilities are clearly delineated to ensure a satisfactory level of safety, accountability, and authority to define the scope of work. (FRAM 9.2.2)
4. DOE procedures ensure that the contractor adequately prioritizes work so that, when the ISMS is implemented, mission and safety expectations are met within available budget and resources. DOE procedures require that performance objectives and related goals and priorities are reviewed and approved. (FRAM 9.2.4)
5. Contractor procedures translate mission expectations from DOE into tasks that permit identification of resource requirements, relative prioritization, and performance measures that are established consistent with DOE requirements. (DEAR 970.5204-2, DOE P 450.5)
6. DOE and contractor procedures provide for DOE approval of proposed tasks and prioritization. Work planning procedures provide for feedback and continuous improvement.
7. DOE and contractor procedures provide for change control of approved tasks, prioritization, and identification of resources.
8. DOE contracting procedures require that the requirements of applicable Federal, State, and local regulations (List A) and the requirements of Department of Energy directives (List B) are appended to the contract.
9. Contractor procedures provide for flow down of DEAR 970.5204-2, "Integration of Environment, Safety and Health into Work Planning and Execution" requirements into subcontracts involving complex or hazardous work.

APPROACH

Record Review: Review the FRAM/FRA and DOE implementing procedures. Determine if there is adequate guidance for DOE involvement in the clear definition of the scope of work. Determine if the mechanisms for translation of the missions and policies from higher authority are appropriate, if a mechanism for assigning priorities has been established, and if performance objectives are reviewed and approved. Determine if the roles and responsibilities for DOE personnel are adequate to support the corporate/site mission. Verify that DOE line management and staff personnel roles, responsibilities, and authorities are appropriate to support ISMS. Review personnel position descriptions, selection criteria, training programs and training records to determine if the staff competency is adequate. Review mission prioritization procedures to determine if tailoring of resources is appropriate. Verify that the budget process allows adequate resources for standards selection, hazard controls, and work authorization processes to support work planning and scope definition.

Review corporate/site manuals of practice that describe the budget and planning process and those documents that identify mission requirements, the approval of contractor plans, and those that address the assignment of budget priorities. Review corporate/site procedures for formally documenting change control procedures. Review the procedures established to ensure that the appropriate requirements are included in the contract as specified in List A or List B. Review how safety requirements are included in subcontracts as well as the flow down of the DEAR clause into subcontracts for hazardous work.

Select several mission tasks from the DOE programs and planning documents and track the tasks through the process to evaluate how the above criteria are met. Review future year planning and current year authorized work. Select several current year authorizations and track change control. Select several DOE and contractor subcontracts (Construction, Process Technology, Research & Technology) and review for incorporation of the ISM DEAR clauses.

Interviews: Interview DOE and contractor personnel responsible for management of the budget process. Interview line managers responsible for Headquarters directed mission accomplishment. Interview the ES&H manager to determine how the process for integration of safety into mission tasks is accomplished. Interview managers at selected corporate/site level to determine their understanding and implementation of the defined process for translation of mission into work authorization. Interview selected ES&H professionals and line managers to determine how safety is incorporated into the budget plans and authorization. Interview DOE and contractor procurement personnel regarding subcontract flow down requirements.

Observations: If possible, observe actual planning and budgetary discussions (including meetings involving the development of the out year planning documents) within and between DOE and BNI. Observe any meetings regarding contract changes i.e. List A or List B.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)

ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Business, Budget, and Contracts (BBC)	OBJECTIVE NO.: 2	DATE:
---	-------------------------	--------------

OBJECTIVE: DOE and contractor budgeting and resource assignment procedures include a process to ensure the application of balanced priorities. Resources are allocated to address safety, programmatic, and operational considerations. Protecting the public, workers, and environment is a priority whenever activities are planned and performed. (CE I-2, CE I-7)

CRITERIA

1. The prioritization and allocation process clearly addresses both ES&H and programmatic needs. The process involves line management input and approval of the results.
2. Priorities include commitments and agreements to DOE as well as stakeholders.
3. Contractor procedures provide resources to adequately analyze hazards associated with the work being planned.
4. Contractor procedures for allocating resources include provisions for implementation of hazard controls for tasks being funded.
5. Resource allocations reflect the tailored hazard controls.
6. The incentive and performance fee structure promote balanced priorities.
7. DOE procedures for defining the scope of work ensure balanced priorities. (FRAM 9.2.3)

APPROACH

Record Review: Review corporate/site manuals of practice that describe the budget and planning process and those documents that address the assignment of budget priority as well as the procedures for their development. Review DOE procedures that identify mission requirements, balancing of resource allocations, and approval of contractor plans in the work authorization documents.

Select several mission tasks from the DOE requirements and outyear planning documents to determine if they adequately address the assignment of resources with balanced priorities. Select several current year authorizations and review selected funded tasks at the individual task level to verify balanced priorities.

Interviews: Interview responsible DOE and contractor personnel who manage the budget process to determine their understanding of the priority for assigning resources. Interview line managers responsible for DOE mission accomplishment. Interview the ES&H manager to determine the process used for integration of safety into mission tasks. Interview selected

managers at each level of corporate/site organizations to determine their understanding of the allocation of resources with appropriate priority.

Observations: If possible, observe actual planning and budgetary discussions (including meetings involving the development of the out year planning documents) within and between DOE and BNI.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Business, Budget, and Contracts (BBC)	OBJECTIVE NO.: 3	DATE:
---	-------------------------	--------------

OBJECTIVE: The contractor procedures and practices ensure that personnel who define the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities. (CE I-8)

CRITERIA

1. Contractor procedures ensure that the personnel including line management who define, prioritize, and approve the scope of work and allocate resources have competence that is commensurate with the assigned responsibilities.
2. Personnel who actually participate in definition of the scope of work and allocate resources demonstrate competence to prioritize and approve work with tailored hazard controls.

APPROACH

Record Review: Review organizational documentation to determine the personnel positions with responsibility associated with this objective. Review the position description for those positions. Review the personnel records that identify the individual qualifications that meet the elements of the position descriptions. Review any training or qualification material including corporate/site manuals that support gaining or verifying competence to fill the positions.

Interviews: Interview selected individuals and managers whose responsibilities include defining the scope of work and allocation of resources to determine competence in prioritizing and approving work with tailored hazard controls.

Observations: If possible, observe actual planning and budgetary discussions (including meetings involving the development of the out year planning documents) within and between DOE and BNI.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD) ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Department of Energy (DOE)	OBJECTIVE NO.: 1	DATE:
--	-------------------------	--------------

OBJECTIVE: DOE has established processes that interface efficiently and effectively with the contractor's organization to ensure that work is performed safely. (CE I-2, CE I-7, CE I-8, CE I-9)

CRITERIA

1. ORP has established clear roles and responsibilities to ensure that work is performed within controls and that responsibility lies with line management.
2. ORP procedures ensure that personnel who review or oversee the performance of work have competence commensurate with the responsibilities to which they are assigned.
3. ORP procedures ensure that priorities are balanced so that work is performed within controls.
4. ORP procedures or processes are in place and effective to require work readiness be properly verified and authorized before work commences within appropriate controls.
5. ORP procedures have clearly defined roles and responsibilities for personnel assigned to oversee, review, and approve the analysis of hazards and controls associated with facilities and activities.
6. ORP procedures require that personnel responsible for approving hazards analyses and controls have competence commensurate with their responsibilities.

APPROACH

Record Review: Review the ORP M 411.1 (ORP FRAM) and ORP implementing procedures for effective interface with the contractor. Determine if there is adequate guidance for the authorization and oversight of work by ORP. Verify that those authorized to perform these functions have clear roles and responsibilities. Determine if the chain of command is clearly described. Verify that the Facility Representative (FR) program is tailored to match the work. Determine if oversight is balanced with risk and the priority of the mission being performed.

Review ORP M 411.1 (ORP FRAM) or other implementing procedures that identify the roles and responsibilities for personnel who conduct oversight and review of the hazard analyses and the establishment of controls. Verify that ORP line management and staff personnel's roles, responsibilities, and authorities are appropriate. Review selected qualification program records.

Interviews: Discuss work authorization and performance activities with the ORP and contractor

personnel and determine if there are adequate mechanisms to ensure that work is properly authorized at all levels. Determine if work safety is perceived as an integral part of work authorization methods and issue resolution. Discuss the systematic oversight of work with ORP and contractor personnel. Determine if oversight is adequate or excessive. Discuss the FR program with the FRs and with contractor personnel to determine if it is effective.

Interview selected ORP personnel to determine their understanding of the assigned responsibilities and determine that they are competent to meet these requirements. Interview ORP personnel that are responsible for the oversight of the hazards analyses processes to determine that an effective interface with the contractor has been established.

Observations: If possible, observe actual planning and budgetary discussions (including meetings involving the development of out year planning documents) within and between ORP and BNI.

If possible observe the ORP oversight of the ISM hazard control process.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Department of Energy (DOE)	OBJECTIVE NO.: 2	DATE:
--	-------------------------	--------------

OBJECTIVE: ORP has established processes that interface efficiently and effectively with the contractor's organization to provide feedback and continuous improvement. Feedback information on the adequacy of controls is gathered, opportunities for improving the definition and planning of work are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur. (CE I-6, CE I-7, CE I-8, CE I-9)

CRITERIA

1. ORP procedures describe clear roles and responsibilities to provide feedback and continuous improvement.
2. ORP procedures ensure that competence is commensurate with the responsibilities to provide feedback and continuous improvement.
3. ORP procedures ensure that feedback is provided and continuous improvement results in the identification of safety standards and requirements.
4. ORP procedures ensure that feedback is provided and continuous improvement results in the tailored hazard controls of the work being performed.
5. ORP procedures promote the continuous improvement and efficiency of operations. ORP priorities are balanced and corrective actions are developed, implemented, and tracked in order to profit from prior experience and the lessons learned.
6. ORP procedures provide line oversight of the contractor's self-assessment programs and QA programs.

APPROACH

Record Review: Review the ORP M 411.1 (ORP FRAM) and ORP implementing procedures to determine how the feedback program functions. Verify that there is ORP line management involvement. Determine that the roles and responsibilities for these programs are clear. Review ORP training requirements and records to ensure that personnel are trained to perform feedback functions and participate in the continuous improvement process. Verify that balanced priorities and tailored approaches are used to conserve and maximize use of resources. Review the procedures established for an ORP Self Assessment Program, as well as procedures to provide

line oversight of the contractor's self-assessment and QA programs. Review the process established to ensure lessons learned are incorporated into the feedback system. Determine if the lessons learned between the federal safety offices and offices of similar functions are appropriately integrated and shared.

Interviews: Discuss the feedback and continuous improvement process with ORP personnel. Verify that safety is integrated into this process and that ORP efforts in this area are important to safety. Determine if process improvement includes efforts to reduce unnecessary safety requirements and improve efficiency. Evaluate the status of establishing line oversight of the contractor's self-assessment programs. Determine if personnel believe that safety activities are tailored to the risk and the priority of the work being performed.

Observations: If possible, observe actual planning and budgetary discussions (including meetings involving the development of out year planning documents) within and between ORP and BNI. Observe any self-assessment activities at time of verification.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD) ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Hazards Identification and Standard Selection (HAZ)	OBJECTIVE NO.: 1	DATE:
---	-------------------------	--------------

OBJECTIVE: Hazards associated with the work are identified, analyzed, and categorized.
(CE I-3, CE I-9)

CRITERIA

1. Contractor and DOE procedures require identification, analysis, and categorization of all hazards associated with the site. Contractor ISMS procedures for analysis of hazards reflect accepted rigor and methodology. The resulting hazards are utilized in selection of standards included in the contract as List A/List B.
2. Contractor procedures require identification, analysis, and categorization of all hazards associated with facilities or activities. Hazards that are considered include nuclear, chemical, industrial or others applicable to the work being considered. Contractor procedures for analysis of hazards reflect accepted rigor and methodology.
3. DOE procedures and mechanisms are in place and implemented to ensure that BNI's hazard analysis is comprehensive, tailored to risk, and sufficient for selecting standards.

APPROACH

Record Review: Review the contractor's procedures for identifying, analyzing, and categorizing hazards at both the site as well as the facility level. Review BNI procedures for authorizing construction activities to ensure that adequate provisions are included so that hazards are properly identified and analyzed. Determine that these procedures are adequate to address the hazards associated with the work and operations.

Review the approved or proposed hazard analysis documentation for selected facilities and activities to verify consistency and compliance with contractor procedures and mechanisms as well as compliance with DOE review and approval mechanisms.

Interviews: Interview corporate/site personnel responsible for identification, analysis, and categorization of hazards to assess their understanding of the procedures and the underlying principles and requirements.

Observations: Observe an ISM process to evaluate the effectiveness of the hazard identification methods being used.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD) ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Hazards Identification and Standard Selection (HAZ)	OBJECTIVE NO.: 2	DATE:
---	-------------------------	--------------

OBJECTIVE: Applicable standards and requirements are identified and agreed upon and are used to develop the appropriate hazard controls. (CE I-4, CE I-9)

CRITERIA

1. Contractor procedures utilize acceptable methodologies to identify adequate hazard control standards at both the site and corporate level and at the facility level to protect the public, worker, and environment. Controls at the corporate level appear in the contract while those at the facility level are reflected in the authorization documentation.
2. Contractor procedures ensure controls are tailored to the hazards associated with the work or operations to be authorized.
3. Contractor procedures ensure the identified controls, standards, and requirements are agreed upon and approved prior to the commencement of the operations or work being authorized.
4. Contractor procedures utilize accepted and structured methods and processes to identify select, gain approval for, periodically review, and maintain safety standards and requirements.

APPROACH

Record Review: Review contractor procedures for identification and designation of standards that become contract requirements and assess their adequacy. Review contractor procedures for identification and designation of hazard controls that are incorporated into facility authorization documentation and assess their adequacy. Review the approach to tailoring the selection of hazard controls and requirements to the identified hazards and maintenance of an appropriate set of standards over time. Review integration of Research and Technology, Process Operations, and from Construction to ensure the required hazards are identified and the selected hazard controls are satisfactory.

Interviews: Interview contractor site/corporate personnel responsible for selection and approval of standards. Determine the understanding and compliance with the procedures for identification, tailoring, review, submittal, approval, and maintenance of the set of standards. Interview personnel responsible for, and who execute the feedback from Research and Technology, Process Operations, and Construction.

Observations: Observe contractor activities involving the preparation, review, approval and/or maintenance of the selected set of standards and requirements; or observe contractor activities that are scheduled to develop, approve, or maintain authorization protocols and authorization agreements as applicable.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Hazards Identification and Standard Selection (HAZ)	OBJECTIVE NO.: 3	DATE:
---	-------------------------	--------------

OBJECTIVE: Contractor procedures ensure that contractor personnel responsible for analyzing the hazards and developing, reviewing, or implementing the controls, have competence that is commensurate with their responsibilities. BNI roles and responsibilities are clearly defined to ensure appropriate oversight and review of the analysis of hazards and the identification of controls. Personnel shall possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities. (CE I-7, CE I-8, CE I-9)

CRITERIA

1. Contractor procedures have clearly defined roles and responsibilities for personnel assigned to oversee, review, approve the analysis of hazards, and establish controls associated with facilities and activities.
2. Contractor procedures require that personnel responsible for analyzing hazards and identification of adequate controls have competence that is commensurate with their responsibilities.

APPROACH

Record Review: Review contractor organization documentation to identify personnel including all levels of management to whom this objective applies. Review the position descriptions for those personnel to determine the required competencies. Review corporate/site training manuals and qualification and competency procedures. Review selected training and qualification records for those personnel identified above to determine how the required competency has been gained, retained, and validated.

Interviews: Interview selected contractor individuals to verify their understanding of the required competencies and the degree to which they meet them.

Observations: None

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD) ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Hazard (HAZ) Safety Programs	OBJECTIVE NO.: 4	DATE:
--	-------------------------	--------------

OBJECTIVE: Within the Environmental Protection/Fire Protection/Chemical Management area, work planning includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the Environmental Protection/Fire Protection/Chemical Management area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE I-4, CE I-5, CE I-6, CE I-7, CE II-4)

CRITERIA

1. Procedures within the Environmental Protection/Fire Protection/Chemical Management Programs require adequate planning of work items to ensure that hazards are analyzed and controls are identified.
2. Procedures for the Environmental Protection/Fire Protection/Chemical Management Programs contain clear roles and responsibilities. The Environmental Protection/Fire Protection/Chemical Management is effectively integrated with line and support managers to ensure that line managers are responsible for safety.
3. Procedures for Environmental Protection/Fire Protection/Chemical Management require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures for the Environmental Protection/Fire Protection/Chemical Management require personnel who are assigned to have a satisfactory level of competence.
5. Procedures for the Environmental Protection/Fire Protection/Chemical Management require feedback and continuous improvement.

APPROACH

Record Review: Review implementing procedures and selected records that define the processes and interactions required for Environmental Protection/Fire Protection/Chemical Management as applicable for engineering design and construction activities. Review the present and planned Environmental Protection, Chemical Management and Fire Protection programs to ensure the appropriate controls and mechanism are in place. Verify the adequacy of the documents to meet the above criteria and determine if the Environmental Protection/Fire Protection/Chemical Management area is effectively integrated into the functional organization or activity procedures.

Review selected procedures and ensure provisions are established for incorporating lessons learned or other opportunities for improvement. Review selected training and qualification records of personnel to determine if they meet competency standards.

Interviews: Interview responsible managers assigned to the individual subject area. Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers.

Observations: Observe planning activities to ensure integration of environmental, chemical, and fire protection issues within the design process.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Management (MG)	OBJECTIVE NO.: 1	DATE:
---	-------------------------	--------------

OBJECTIVE: The ISMS Description is consistent and responsive to DOE Policies 450.4, 450.5, and 450.6; the DEAR; and the direction to the contractor from the Approval Authority. The contractor policies and procedures ensure that the ISMS Description is maintained, implemented, and that implementation mechanisms result in integrated safety management. (CE I-1)

CRITERIA

1. The ISMS Description is consistent and responsive to DOE Policies 450.4, 450.5, and 450.6; the DEAR; and the direction to the contractor from the Approval Authority.
2. The contractor has mechanisms in place to direct, monitor, and verify the integrated implementation of the ISMS as described in the ISMS Description. Implementation and integration expectations and mechanisms are evident throughout all corporate/site organizational functions.
3. The contractor has assigned responsibilities and established mechanisms to ensure that the ISMS Description is maintained current and that the annual update information is prepared and submitted.
4. The contractor has established a process that establishes, documents, and implements safety performance objectives, performance measures, and commitments. The ISMS describes how system effectiveness will be measured. The ISMS also describes how performance data is routinely coupled and distributed for contractor management's use.

APPROACH

Record Review: Review the ISMS Description and the direction concerning the guidance on the preparation, content, review and approval of the ISMS. Review corporate/site procedures for the implementation, review, and maintenance of the ISMS Description and associated items, including provisions for the annual review and update to DOE. Review charters and "output documentation" from any ISMS coordinating committees. Review contractor assessment activities to determination of the adequacy of implementation of ISMS.

Review implementation planning efforts and any “gap analysis” reports, which may have been developed. Review the process established to measure the effectiveness of the ISMS to ensure that the methods support the establishment, documentation, and implementation of safety performance objectives.

Interviews: Interview contractor managers who are responsible for the development and maintenance of the ISMS Description. Interview contractor line managers who are or will be responsible for administering the mechanisms of the ISMS. Interview chairman and key members of any ISMS coordinating committees, if established to determine implementation status or plans.

Observations: If possible observe any coordinating committee meetings that are held.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD) ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Management (MG)	OBJECTIVE NO.: 2	DATE:
---	-------------------------	--------------

OBJECTIVE: Contractor roles and responsibilities are clearly defined to ensure satisfactory safety, accountability and authority. Line management is responsible for safety. Competence is commensurate with responsibilities. (CE I-7, CE I-8)

CRITERIA

1. Contractor ISMS defines clear roles and responsibilities of all personnel to ensure that safety is maintained at all levels. ISMS procedures and implementing mechanisms specify that line management is responsible for safety.
2. Contractor procedures identify line management as responsible for ensuring that the implementation of hazard controls is adequate to ensure that work is planned and approved and conducted safely. Procedures require that line managers are responsible for the verification of adequate implementation of controls to mitigate hazards prior to authorizing work to commence.
3. Contractor procedures identify line management as responsible for ensuring that hazard controls are established.
4. Contractor procedures ensure that personnel who supervise work have competence commensurate with the responsibilities.
5. Contractor and DOE procedures define the processes for the development, approval, and maintenance of documentation addressing the establishment of authorization protocols and authorization agreements.

APPROACH

Record Review: Review corporate/site manuals of practice that define roles and responsibilities of personnel responsible for safety. Review position descriptions and other documentation that describes the roles and responsibilities related to ensuring safety is maintained when developing the definition of the scope of work. The review should consider personnel in both line management and staff positions and should evaluate whether line managers are responsible for safety. Review the processes established to develop, approve, and maintain authorization protocols and authorization agreements as applicable.

Interviews: Interview selected personnel at all levels of management who are identified by the record review above. Verify their understanding and commitment to ensuring safety during the processes of defining the scope of work.

Observations: Observe scheduled activities that demonstrate the planning and approval activities prior to authorizing work to assess that clear roles and responsibilities are established and that line management is responsible for safety. Activities such as weekly planning meetings, plans of the day, or site/corporate safety meetings are typical meetings, which may provide good examples of the safety decision-making process.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE I ASSESSMENT FORM

FUNCTIONAL AREA: Management (MG)	OBJECTIVE NO.: 3	DATE:
---	-------------------------	--------------

OBJECTIVE: Feedback information on the effectiveness of the ISMS is gathered, opportunities for improvement are identified and implemented, line and independent oversight is conducted, and, if necessary, regulatory enforcement actions occur. (CE I-6, CE I-7, CE I-8)

CRITERIA

1. Contractor procedures describe clear roles and responsibilities to provide feedback and continuous improvement including line management responsibility for safety.
2. Contractor procedures ensure that competence is commensurate with the responsibilities to provide feedback and continuous improvement.
3. Contractor procedures ensure that priorities are balanced to ensure feedback is provided and continuous improvement results.
4. Contractor procedures require line and independent oversight or assessment activities at all levels. Oversight and assessment activities verify that work is performed within agreed upon controls.
5. Contractor procedures ensure oversight or assessment results are managed to ensure lessons are learned and applied; that issues are identified and managed to resolution; that fundamental causes are determined and effective corrective action plans are developed and implemented.
6. Contractor procedures ensure that performance measures or indicators and performance objectives are developed in coordination with DOE as required. Contractor procedures require effective management and use of performance measures and objectives to ascertain the status of the ISS.
7. Contractor procedures provide for regulatory compliance and enforcement as required by rules, laws, and permits such as PAAA, NEPA, RCRA, CERCLA, etc.

APPROACH

Record Review: Review corporate/site manuals of practice to determine that the procedures, processes and requirements that meet this objective are effective. The review should include determining compliance with regulations in accordance with laws, rules, and permits.

Review the results and schedules of self- and independent assessments. Review procedures for scheduling and tracking routine assessments. Track issues identified during assessments to completion. Assess the effectiveness of the assessment and feedback process to achieve process improvement.

Review the issues management program for adequacy, effectiveness, and support for process improvement.

Review the performance measures or indicators and performance objectives. Ensure that a process has been established to measure the performance of the ISMS. Review the process for development of the performance indicators including how the development and change is coordinated with DOE.

Interviews: Interview selected managers to determine the adequacy and effectiveness of the assessment activities. Interview contractor assessment managers to determine the adequacy and effectiveness of the contractor's oversight program, as well as the compliance or independent assessment programs that may be established.

Observations: If possible, observe senior management assessments or self-assessment activities, including documentation and post activity briefing of results. Observe a critique or management review including development of lessons learned and determination of root causes.

Criteria Review and Approach Documents

Phase II

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE II ASSESSMENT FORM

FUNCTIONAL AREA: DOE Phase II	OBJECTIVE NO.: 1	DATE:
--	-------------------------	--------------

OBJECTIVE: DOE.1 ORP procedures and mechanisms should ensure that work is formally and appropriately authorized, and performed safely. ORP line managers should be involved in the review of safety issues and concerns and should have an active role in authorizing and approving work and operations. (CE 11-7)

CRITERIA

1. ORP procedures and/or mechanisms are in place that establish a process for confirming readiness and authorizing operations. (FRAM 9.5.1 and 9.5.2)
2. ORP procedures and/or mechanisms ensure that the safety management system is properly implemented and line management oversight of the contractor's worker, public, environment, and facility protection programs is performed. (FRAM 9.5.2)
3. ORP procedures and/or mechanisms require day-to-day operational oversight of contractor activities through Facility Representatives. (FRAM 9.5.2)
4. ORP procedures and/or mechanisms ensure the implementation of quality assurance programs and ensure that contractors implement quality assurance programs. (FRAM 9.5.3)

APPROACH

Record Review: Review the ORPO M 411.1 (ORP FRAM) and ORP implementing guidance to determine that the process for the authorization and oversight of work is adequate. Verify that those ORP personnel assigned to perform these functions have clear roles and responsibilities. Determine if the oversight policy is balanced with risk and priority of mission. Review the quality assurance program established by ORP and the interactions of that program with the contractor's quality assurance program. Verify ORP programs hold line management responsible for safety and contain clear roles and responsibilities.

Interviews: Discuss work authorization and performance activities with ORP and contractor personnel to determine if there are adequate mechanisms to ensure that work is properly authorized at all levels. Determine if worker safety is perceived as an integral part of the work authorization process and that workers are involved in issue resolution if appropriate. Discuss the oversight programs with ORP and contractor personnel. Discuss the Facility Representative (FR) programs with facility representatives and contractor personnel to determine if the FR program is effective. Discuss oversight programs with ORP staff who perform ES&H management and supervision assignments. During interviews, verify understanding of line management responsibility for safety and understanding of clear roles and responsibilities.

Observations: Observe selected facility representative and ORP staff oversight activities.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE II ASSESSMENT FORM

FUNCTIONAL AREA: DOE Phase II	OBJECTIVE NO.: 2	DATE:
--	-------------------------	--------------

OBJECTIVE: DOE.2 ORP procedures and mechanisms ensure that hazards are analyzed, controls are developed, and that feedback and improvement programs are in place and effective. ORP line managers are using these processes effectively, consistent with FRAM and FRA requirements.
(CE 11-8)

CRITERIA

1. ORP procedures and/or mechanisms are in place that direct ORP line manager oversight to ensure that implementation of hazards mitigation programs and controls are established.(FRAM 9.4.2)
2. ORP procedures and/or mechanisms are in place that direct the preparation of the authorization basis documentation and oversee the implementation by the contractor. Procedures for development, review, approval, maintenance, and utilization of Authorization Agreements are implemented. (FRAM 9.4.3)
3. ORP procedures and/or mechanisms require that contractors develop a lessons- learned program and monitor its implementation. A process is established for reviewing occurrence reports and approving proposed corrective action reports. A ORP process is established and effectively implemented to continuously improve efficiency and quality of operations. Corrective actions are developed, implemented, and tracked in order to profit from prior experience and the lessons learned. ORP provides effective line oversight of the contractor's self-assessment programs. (FRAM 9.6.2)

APPROACH

Record Review: Review the FRAM/FRA and ORP implementing guidance to determine that a process for ensuring that effective interfaces with the contractor's ISMS has been established. Review ORP procedures for ensuring that adequate provisions are included for verification that hazards are properly identified, analyzed, and categorized. Review the approved and in process hazards analysis documentation to verify that contractor procedures and mechanisms have been properly reviewed and approved.

Review the ORP process established to provide line oversight of the contractor's self-assessment programs. Review ORP guidance to the contractor concerning the establishment of a lessons learned program. Determine if the lessons learned between federal safety offices and offices of similar functions are appropriately integrated and shared. Evaluate the ORP issues management and tracking system to ensure that there is an adequate system in place.

Interviews: Interview selected ORP personnel responsible for the review and approval of the results of the contractor's identification, analysis, and categorization of hazards to assess their understanding of the procedures and the underlying principles and requirements. Interview ORP personnel responsible for administering the issues management program and those ORP line managers who provide oversight of the contractor's self-assessment programs.

Observations: Observe the processes, and mechanisms used in the determination of hazard controls, the oversight of the self assessment processes and lessons learned processes.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE II ASSESSMENT FORM

FUNCTIONAL AREA: HAZARD Phase II	OBJECTIVE NO.: 1	DATE:
---	-------------------------	--------------

OBJECTIVE: HAZ.1 An integrated process has been established and is utilized to develop controls that mitigate the identified hazards present within a facility or activity. The set of controls ensure adequate protection of the public, worker, and the environment and are established as agreed upon by DOE. These mechanisms demonstrate integration, which merge together at the workplace. There exists a feedback process to the design group identified issues. (CE 11-3)

CRITERIA

1. Procedures and/or mechanisms are in place to develop, review, approve and maintain current all elements of the facility authorization documentation with an integrated workforce.
2. Procedures and/or mechanisms that identify and implement appropriate controls for hazards mitigation (including Radiation Control) within the facility or activity are developed and utilized by workers and approved by line managers. These procedures/mechanisms reflect the set of safety requirements agreed to by DOE.
3. Standards and requirements are appropriately tailored to the hazards.
4. Procedures and/or mechanisms are in place to effectively and accurately implement all aspects of the authorization documents.
5. Procedures and/or mechanisms exist to feedback to the design process, issues identified in construction that relate to hazard identification and controls, safety system deviations, or difficulties in construction planning and execution.

APPROACH

Record Review: Review a sample of construction documents relative to hazard controls and safety systems to verify safety controls are provided for the hazards identified and that the control strategy encompasses a hierarchy of 1) hazard elimination, 2) engineering controls, 3) administrative controls, and 4) personnel protective equipment. Typical documents include, Safety Analysis Reports, Technical Safety Requirements, Health and Safety Plans (HASPs), Radiological Work Permits (RWPs), operating procedures, etc. Sample actual implementing documentation. Coordinate the review of work related documents such as RWPs and operating procedures with the OP and SME functional area reviewers.

Interviews: Interview personnel responsible for developing and implementing hazard controls at the facility level. This should include personnel such as those responsible for ALARA review requirements, Construction Hazard activities, Process Hazard Analysis activities, etc. Interview personnel who are responsible for and execute the feedback to design process.

Observations: Observe the actual work planning processes including the development, review, approval, and implementation of hazard controls. Review any feedback to design concerning hazards or difficulties in implementation of the approved design.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE II ASSESSMENT FORM

FUNCTIONAL AREA: Management Phase II	OBJECTIVE NO.: 1	DATE:
---	-------------------------	--------------

OBJECTIVE: MG.1 Clear and unambiguous roles and responsibilities are defined and maintained at all levels within the facility or activity. Managers at all levels demonstrate a commitment to ISMS through policies, procedures, and their participation in the process. Facility or activity line managers are responsible and accountable for safety. Facility or activity personnel are competent commensurate with their responsibility for safety. (CE 11-6)

CRITERIA

1. Procedures and/or mechanisms are in place that define clear roles and responsibilities within the facility or activity to ensure that safety is maintained at all levels.
2. Facility or activity procedures specify that line management is responsible for safety.
3. Procedures and/or mechanisms are in place that ensure that personnel who supervise work have competence commensurate with their responsibilities.
4. Procedures and/or mechanisms are in place that ensure that personnel performing work are competent to safely perform their work assignments.
5. Procedures and/or mechanisms are in place and utilized by personnel that ensure identified work (i.e., mission-related tasks and process, processes or facility modification, maintenance work, etc.) can be accomplished within the standards and requirements identified for the facility.

APPROACH

Record Review: Review facility or activity manuals of practice that define roles and responsibilities of personnel responsible for safety. Review position descriptions and other documentation that describe roles and responsibilities related to ensuring safety is maintained. The review should consider personnel in line management and staff positions and should evaluate whether line managers are responsible for safety. Review the procedures established to ensure that managers and the work force is competent to safely perform work. Review the procedures and/or mechanisms that are utilized by the facility or activity to ensure that identified work is accomplished in accordance with established standards and requirements. Review the records of qualification and certification as applicable.

Interviews: Interview selected personnel at all levels of facility or activity management who are identified by the record review above. Verify their understanding and commitment to ensuring that safety is maintained for all work at the facility or activity. Interview a selected number of supervisors and workers (see definition) to determine their understanding of competency requirements and their commitment to performing work safely.

Observations: Observe scheduled activities that demonstrate that clear roles and responsibilities are established and understood, that line managers are actively involved with decisions affecting safety, and that managers and workers are competent to perform their duties. Activities such as weekly planning meetings, plans of the day, event critiques, safety training, and safety meetings are typical events that may provide good examples of the safety training and decision making process.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE II ASSESSMENT FORM

FUNCTIONAL AREA: Management Phase II	OBJECTIVE NO.: 2	DATE:
---	-------------------------	--------------

OBJECTIVE: MG.2 An integrated process has been established that ensures that mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process. (CE 11-5)

CRITERIA

1. Procedures and/or mechanisms are in place and utilized by personnel to collect feedback information such as self assessment, monitoring against performance objectives, occurrence reporting, and routine observation. Personnel assigned these roles are competent to execute these responsibilities.
2. Procedures are in place that develop feedback and improvement information opportunities at the site and facility levels as well as the individual maintenance or activity level. The information that is developed at the individual maintenance or activity level is utilized to provide feedback and improvement during future similar or related activities.
3. Procedures and/or mechanisms are in place and utilized by managers to identify improvement opportunities. Evaluation and analysis mechanisms should include processes for translating operational information into improvement processes and appropriate lessons learned.
4. Procedures and/or mechanisms are in place and utilized by managers to consider and resolve recommendations for improvement, including worker suggestions
5. Procedures and/or mechanisms are in place, which include a process for oversight that ensures that regulatory compliance is maintained.

APPROACH

Record Review: Review the performance monitoring documentation for the feedback and continuous improvement process. This should include such documents as occurrence reports, shift orders, deficiency reports, post-job reviews, safety observer reports, employee concerns programs, and reports of self assessments. Review procedures for work to determine that adequate feedback and improvement mechanisms are in place at the individual maintenance or activity level. Review actual data from these processes to evaluate the effectiveness of the implementation of these mechanisms.

Interviews: Interview personnel responsible for administering the feedback and continuous improvement process. This should include personnel such as those responsible for occurrence reporting, lessons learned preparation, shift orders preparation, worker concerns program, self

assessment, and oversight. Interview personnel responsible for capturing and utilizing feedback and improvement information during individual maintenance or other work activities.

Observations: Observe development and utilization of feedback and continuous improvement activities. This should include such things as conducting post-job critiques, monitored evolutions, post ALARA reviews, conducting a self-assessment or independent assessments, etc.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE II ASSESSMENT FORM

FUNCTIONAL AREA: Construction Operations	OBJECTIVE NO.: 1	DATE:
---	-------------------------	--------------

OBJECTIVE: OP.1 An integrated process has been established and is utilized to effectively plan, authorize and execute the identified work for the facility or activity. (CE 11-4)

CRITERIA

1. Procedures and/or mechanisms are in place to ensure that work planning is integrated at the individual activity level fully analyzes hazards and develops appropriate controls.
2. Procedures and/or mechanisms are in place which ensures that there is a process used to confirm that the facility or activity and the construction work force are in an adequate state of readiness prior to authorizing the performance of the work.
3. Procedures and/or mechanisms are in place that ensures there is a process used to authorize and initiate construction activities.
4. Procedures and/or mechanisms are in place which ensures that safety requirements are integrated into work performance.
5. Procedures and/or mechanisms are in place which ensures that adequate performance measures and indicators, including safety performance measures are established for the work.
6. Workers (see definition) actively participate in the work planning process.
7. Procedures and/or mechanisms demonstrate effective integration of safety management.

APPROACH

Record Review: Review Project implementing procedures for planning, authorizing, and conducting work focusing on construction activities. Verify that responsibilities, worker and management involvement, and work authorization processes are clear and adequate for ensuring worker and environmental safety during work execution. Verify that Project procedures provide for the establishment of safety performance measures and indicators for work performed by Project personnel, including subcontractors. Verify that established performance measures and indicators include those for environmental safety. Verify that the established performance measures and indicators are truly direct indicators of, and provide information on, how safely work is being done. Verify that work authorization agreements and protocols are adequate and demonstrate effective integration.

Interviews: Interview selected management personnel responsible for authorizing, performing, and measuring the performance of work including those responsible for preparing, implementing, and or maintaining Plan of the Day (POD), equipment status files, pre-job

briefings, and inspection plans. Interview selected management personnel responsible for developing work procedures and controls. Verify adequate understanding of worker involvement at each step of the process. Verify worker knowledge of the integration of hazard controls.

Observations: Observe the actual authorization and performance of work activities. This should include such items as pre-job briefings, authorizations by managers to proceed, command and control of the work, review of safety requirements, etc.. Observe work hazard identification activities. This should include such things as validation of procedures, procedure tracking, compensatory measures determination, etc.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE II ASSESSMENT FORM

FUNCTIONAL AREA: SME Configuration Management Phase II	OBJECTIVE NO.: 1	DATE:
---	-------------------------	--------------

OBJECTIVE: CF.1 Within the Configuration Management area a process exists to ensure the integrity and capabilities of the safety systems, safety features and other significant design features are maintained. There is an adequate process for including configuration management within the authorization and control of work process, as well as a process for identifying opportunities for feedback and continuous improvement. Within the Configuration Management area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE 11-2, CE 11-3, CE 114, CE 11-5, CE 11-6)

CRITERIA

1. Procedures and/or mechanisms consider Configuration Management in the planning of individual work items to ensure that hazards are analyzed and controls are not changed.
2. Procedures and/or mechanisms for the Configuration Management area contain clear roles and responsibilities.
3. Procedures and/or mechanisms for the Configuration Management area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the Configuration Management area require that personnel who are assigned to the Configuration Management area have a satisfactory level of competence.
5. Procedures and/or mechanisms for the Configuration Management area require that within the Configuration Management area feedback and continuous improvement results.

APPROACH

Record Review: Review the manuals of practice and selected Configuration Management records that define the procedures, interactions and results of the Configuration Management Program at the site, facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the Configuration Management area is effectively integrated into the facility or activity procedures. Review any assessments that provide an opportunity to assess that lessons learned have been effectively used within the Configuration Management area. Review training records of personnel in the Configuration Management area to determine that they meet competency standards.

Interviews: Interview personnel and responsible managers in the Configuration Management area assigned. Interview line managers to assess the establishment of clear roles and

responsibilities and the understanding of the support provided to line managers. Interview personnel assigned to the Configuration Management area to assess the level of competence.

Observations: Observe events such as the development of a procedure, development of a hazards analysis or the approval process for an individual work item, which includes interactions with personnel of the Configuration Management area.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE II ASSESSMENT FORM

FUNCTIONAL AREA: SME Industrial Health Industrial Safety	OBJECTIVE NO.: 1	DATE:
---	-------------------------	--------------

OBJECTIVE: IS/IH.1 Within the Industrial Safety/ Industrial Hygiene area (including radiation controls) the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the Industrial Safety/ Industrial Hygiene area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE 11-2, CE 11-3, CE 114, CE 11-5, CE 11-6)

CRITERIA

1. Procedures and/or mechanisms for the Industrial Safety/ Industrial Hygiene area (including radiation controls) require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the Industrial Safety/ Industrial Hygiene (including radiation controls) area contain clear roles and responsibilities. The Industrial Safety/ Industrial Hygiene area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for the Industrial Safety/ Industrial Hygiene area (including radiation controls) require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the Industrial Safety/ Industrial Hygiene area (including radiation controls) require that personnel who are assigned to the Industrial Safety/ Industrial Hygiene area have a satisfactory level of competence.
5. Procedures and/or mechanisms for the Industrial Safety/ Industrial Hygiene area (including radiation controls) require that within the Industrial Safety/ Industrial Hygiene area feedback and continuous improvement results.

APPROACH

Record Review: Review the manuals of practice and selected records that define the procedures and interactions required for the Industrial Safety/ Industrial Hygiene area (including radiation controls) at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the Industrial Safety/ Industrial Hygiene area is effectively integrated into the facility or activity procedures. Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the Industrial Safety/ Industrial Hygiene area. Review training records of personnel in the Industrial Safety/ Industrial Hygiene area to determine that they meet competency standards. Review the procedures used for crane

safety. Review the crane safety records to ensure those safety processes are being followed.

Interviews: Interview personnel and responsible managers in the Industrial Safety/ Industrial Hygiene area assigned. Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers. Interview personnel assigned to the IS/IH area to assess the level of competence. Interview personnel responsible and involved in crane safety activities.

Observations: Observe events such as the development of a procedure, development of a hazards analysis such as a radiological work permit or job hazard analysis, or the approval process for an individual work item, which includes interactions with personnel of the Industrial Safety/ Industrial Hygiene area. Observe safety reviews and crane safety related activities.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE II ASSESSMENT FORM

FUNCTIONAL AREA: SME Quality Phase II	OBJECTIVE NO.: 1	DATE:
--	-------------------------	--------------

OBJECTIVE: Quality.1 Within the Quality Assurance area the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the Quality Assurance area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE 11-2, CE 11-3, CE 114, CE 11-5, CE 11-6)

CRITERIA

1. Procedures and/or mechanisms for the Quality Assurance area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the Quality Assurance area contain clear roles and responsibilities. The Quality Assurance area is effectively integrated with line support managers to ensure line managers are responsible for safety.
3. Procedures and/or mechanisms for the Quality Assurance area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the Quality Assurance area require that personnel who are assigned to the Quality Assurance area have a satisfactory level of competence.
5. Procedures and/or mechanisms for feedback and continuous improvement in the area of Quality Assurance have been satisfactorily implemented and have produced desirable results.

APPROACH

Record Review: Review the manuals of practice and selected QA records that define the procedures, interactions and results of the Quality Assurance Program at the site, facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the Quality Assurance area is effectively integrated into the facility or activity procedures. Review any assessments that provide an opportunity to assess that lessons learned have been effectively used within the Quality Assurance area. Review training records of personnel in the Quality Assurance area to determine that they meet competency standards.

Interviews: Interview personnel and responsible managers in the Quality Assurance area assigned. Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers. Interview personnel assigned to the Quality Assurance area to assess the level of competence.

Observations: Observe events such as the development of a procedure, development of a hazards analysis such as a job hazard analysis, or the approval process for an individual work item, which includes interactions with personnel of the Quality Assurance area.

CRITERIA AND REVIEW APPROACH DOCUMENT (CRAD)
ISMS PHASE II ASSESSMENT FORM

FUNCTIONAL AREA: SME Training Phase II	OBJECTIVE NO.: 1	DATE:
---	-------------------------	--------------

OBJECTIVE: TRA.1 Within the Training (construction) area the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the Training (construction) area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE 11-2, CE 11-3, CE 11-4, CE 11-5, CE 11-6)

CRITERIA

1. Procedures and/or mechanisms for the Training (construction) area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the Training (construction) area contain clear roles and responsibilities. The Training (construction) area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for the Training (construction) area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the Training (construction) area require that personnel who are assigned to the Training (construction) area have a satisfactory level of competence.
5. Procedures and/or mechanisms for feedback and continuous improvement in the area of Training (construction) have been satisfactorily implemented and have produced desirable results.

APPROACH

Record Review: Review the manuals of practice and selected records that define the procedures and interactions required for the Training (construction) area at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the Training (construction) area is effectively integrated into the facility or activity procedures. Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the Training (construction) area. Review training records of personnel in the Training (construction) area to determine that they meet competency standards. Review training records of selected personnel to determine level of qualification of the individuals.

Interviews: Interview personnel and responsible managers in the Training (construction) area assigned. Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers. Interview personnel assigned to

the Training (construction) area to assess the level of competence.

Observations: Observe events such as the development of a training class, or the approval process for an individual work item, which includes interactions with personnel of the Training (construction) area. Observe training classes and evaluate effectiveness.

Attachment 4 - Qualification Summary Form

Team Member Qualification Summary

Team Member Name:

Title and Organization:

Area Assigned:

Summary of Education and Technical Qualifications and Experience:

Summary of Assessment, Inspection, and Audit Experience:

Attachment 5 - Verification Review Final Report Outline

SIGNATURE PAGE - the page used by the Team Leader to promulgate the final version of the report.

Verification Review Final Report Outline

TABLE OF CONTENTS - identifies all sections and subsections of the report, including the page, table, figure, and appendix, and the appropriate review.

EXECUTIVE SUMMARY - provides an overview of the results of the ISMS verification, including a summary of the recommendations that result from the review. The executive summary will identify opportunities for improvement (issues) as well as noteworthy practices (strengths) identified during the review.

INTRODUCTION - includes the overall objective of the evaluation, the review process and methodologies used in the review, and the team composition.

PURPOSE - includes the purpose of the ISMS verification.

SCOPE - includes the scope of the ISMS verification.

ASSESSMENT OF BNI ISMS - provides a summary discussion of the overall results of the verification. The section will include a summary for each functional area and issues prepared by the functional area sub-teams. In addition, the section will provide details of the review, which are necessary to support the recommendation to the DOE-ORP Manager concerning the approval of the BNI ISMS Description. This section will provide support for any recommendations or observations associated with DOE-ORP. This section will also discuss the observations and conclusions of the team regarding the adequacy of supporting program and process documents. Finally, any deviations from this Review Plan will be discussed in this section of the report.

CONCLUSIONS AND RECOMMENDATIONS - will address the adequacy of the BNI ISMS Description. It will further provide information about the adequacy of supporting program and process documents. Additionally, the conclusion will include the DOE-ORP role in the Integrated Safety Management process and the effectiveness of DOE-ORP input.

LESSONS LEARNED - discuss lessons learned associated with the ISMS verification process as well as with the development of the BNI ISMS.

APPENDICES - the will include the Assessment Forms, and the Review Plan which includes the CRADs.

Attachment 6 - ISMSV ASSESSMENT FORM (Form 1)

FUNCTIONAL AREA:	OBJECTIVE	DATE:
-------------------------	------------------	--------------

OBJECTIVE:

Criteria

1)

2)

etc.

APPROACH:

Records Review:

Interviews Conducted:

Observations:

Discussion of Results:

Criterion 1:

Criterion 2:

Criterion 3:

Conclusion:

Issue(s):

Inspector: _____	Team Leader: _____
------------------	--------------------